Thecus N0204 miniNAS

FW v3.00.08

User Manual

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About This Manual

All information in this manual has been carefully verified to ensure its correctness. In case of an error, please provide us with your feedback. Thecus Technology Corporation reserves the right to modify the contents of this manual without notice.

Product name: Thecus N0204 miniNAS
Manual Version: 2.3
Release Date: June 2010

Limited Warranty

Thecus Technology Corporation guarantees all components of Thecus N0204 miniNAS are thoroughly tested before they leave the factory and should function normally under general usage. In case of any system malfunctions, Thecus Technology Corporation and its local representatives and dealers are responsible for repair without cost to the customer if the product fails within the warranty period and under normal usage. Thecus Technology Corporation is not responsible for any damage or loss of data deemed to be caused by its products. It is highly recommended that users conduct necessary back-up practices.

Safety Warnings

For your safety, please read and follow the following safety warnings:

- Read this manual thoroughly before attempting to set up your N0204 miniNAS.
- Your N0204 miniNAS is a complicated electronic device. DO NOT attempt to repair it under any circumstances. In the case of malfunction, turn off the power immediately and have it repaired at a qualified service center. Contact your vendor for details.
- DO NOT allow anything to rest on the power cord and DO NOT place the power cord in an area where it can be stepped on. Carefully place connecting cables to avoid stepping or tripping on them.
- Your N0204 miniNAS can operate normally under temperatures between 0°C and 40°C, with relative humidity of 20% – 85%. Using the N0204 miniNAS under extreme environmental conditions could damage the unit.
- Ensure that the N0204 miniNAS is provided with the correct supply voltage (AC 100V ~ 240V, 50/60 Hz, 5V/3A). Plugging the N0204 miniNAS to an incorrect power source could damage the unit.
- Do NOT expose the N0204 miniNAS to dampness, dust, or corrosive liquids.
- Do NOT place the N0204 miniNAS on any uneven surfaces.
- DO NOT place the N0204 miniNAS in direct sunlight or expose it to other heat sources.
- DO NOT use chemicals or aerosols to clean the N0204 miniNAS. Unplug the power cord and all connected cables before cleaning.
- DO NOT place any objects on the N0204 miniNAS or obstruct its ventilation slots to avoid overheating the unit.
- Keep packaging out of the reach of children.
- If disposing of the device, please follow your local regulations for the safe disposal of electronic products to protect the environment.

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Chapter 1: Introduction

Overview

Thank you for choosing the Thecus N0204 mini NAS Server. The Thecus N0204 miniNAS is an easy-to-use storage server that allows a dedicated approach to storing and distributing data on a network. Data reliability is ensured with RAID features that provide data security and recovery. Gigabit Ethernet ports enhance network efficiency, allowing the N0204 miniNAS to take over file management functions, increase application and data sharing and provide faster data response. The N0204 miniNAS offers data mobility with a disk roaming feature that lets you hot swap working hard drives for use in another N0204 miniNAS, securing the continuity of data in the event of hardware failure. The N0204 miniNAS allows data consolidation and sharing between Windows (SMB/CIFS), UNIX/Linux, and Apple OS X environments. The N0204 miniNAS's user-friendly GUI supports multiple languages.

Product Highlights

File Server

First and foremost, the N0204 miniNAS allows you to store and share files over an IP network. With a Network Attached Storage (NAS) device, you can centralize your files and share them easily over your network. With the easy-to-use web-based interface, users on your network can access these files in a snap.

To learn about the Web User Interface, go to
Chapter 5: Using the N0204 > Using WebDisk.

FTP Server

With the built-in FTP Server, friends, clients, and customers can upload and download files to your N0204 miniNAS over the Internet with their favorite FTP programs. You can create user accounts so that only authorized users have access.

To set up the FTP Server, refer to
Chapter 4: System Network> FTP .

iTunes Server

With the built-in iTunes server capability, the N0204 miniNAS enables digital music to be shared and played anywhere on the network!

To set up the iTunes Server, refer to
Chapter 4: Application Server>iTunes Configuration.

Media Server

With the built-in Media Server capability, the N0204 miniNAS provides media streaming service to stand-alone networked home media adapters that support the UPnP AV protocol or are Digital Living Network Alliance (DLNA) standard compliant.

To set up the Media Server, refer to
Chapter 4: System Network >Media Server.

Backup Server

Don't leave precious data to chance. With advanced backup capabilities, you can easily upload mission critical files to the N0204 miniNAS , and even automate your backup tasks for true peace-of-mind.

To find out how to backup your files with the N0204 miniNAS, refer to
Chapter 4: Backup >Nsync.

Printer Server

With the N0204 miniNAS's Printer Server, you can easily share an IPP printer with other PCs connected to your network.

To set up the Printer Server, refer to
Chapter 4: Application Server>Printer Information.

Superior Power Management

N0204 supports schedule power on/off. With this feature, administrator can set at what time to turn on or off the system. This feature is a big plus for people who want to conserve energy. To schedule system on and off, refer to
Chapter 4: System Management> Scheduled Power On/Off

Package Contents

Your N0204 package should contain the following items:

- N0204 miniNAS Unit x1
- 2.5" HDD Tray x2 (Installed)
- Power Adaptor + Power cord x1
- QIG (Quick Installation Guide) x1
- CD-Title x1 (Universal CD) x1
- Ethernet Cable x1
- Screw Kit bag x1
- HDD Compatibility list Card x1
- Multiple Languages Warranty Card x1

Please check to see if your package is complete. If you find that some items are missing, contact your dealer.

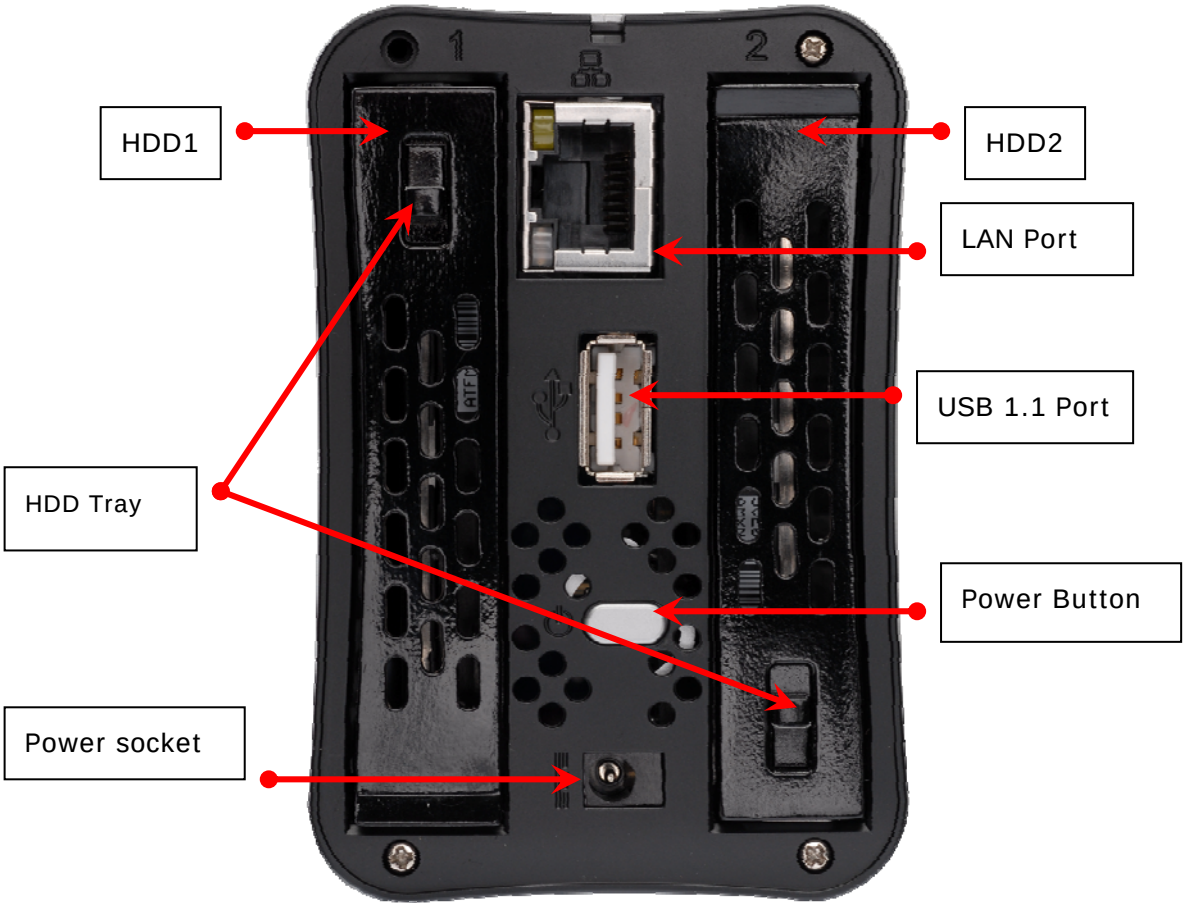
Front Panel

The Thecus N0204 miniNAS's front panel has the USB copy button, indicators, and USB port:

Front Panel	
Item	**Description**
USB copy Button/LED	• Copy USB storage contents to N0204 miniNAS • **Blinking Green:** Copy activity • **Solid Green:** Copy Success • **Solid Red**: Copy Fail
HDD 1 LED	• **Solid Red:** HDD failed • **Blinking Green:** HDD activity
HDD 2 LED	• **Solid Red:** HDD failed • **Blinking Green:** HDD activity
LAN LED	• **Solid Green:** network link • **Blinking Orange:** network activity
Power LED	• **Solid Blue:** system is powered on
USB 2.0 Port	• USB 2.0 port for compatible USB devices, such as digital cameras, USB disks.

Rear Panel

The Thecus N0204 miniNAS's rear panel features ports and connectors.



Back Panel	
Item	**Description**
USB 1.1 Port	• USB 1.1 port for compatible USB Printer
LAN Port	• LAN port for connecting to an Ethernet network through a switch or router
Power Connector	• Connect the included power adaptor to this connector
Power Button	• Power on/off N0204 miniNAS • **Solid blue:** Device is powered on
HDD Tray hook hitch	• To install HDD 1~2 into N0204 miniNAS

Chapter 2: Hardware Installation

Overview

Your N0204 miniNAS is designed for easy installation. To help you get started, the following chapter will help you quickly get your N0204 miniNAS up and running. Please read it carefully to prevent damaging your unit during installation.

Before You Begin

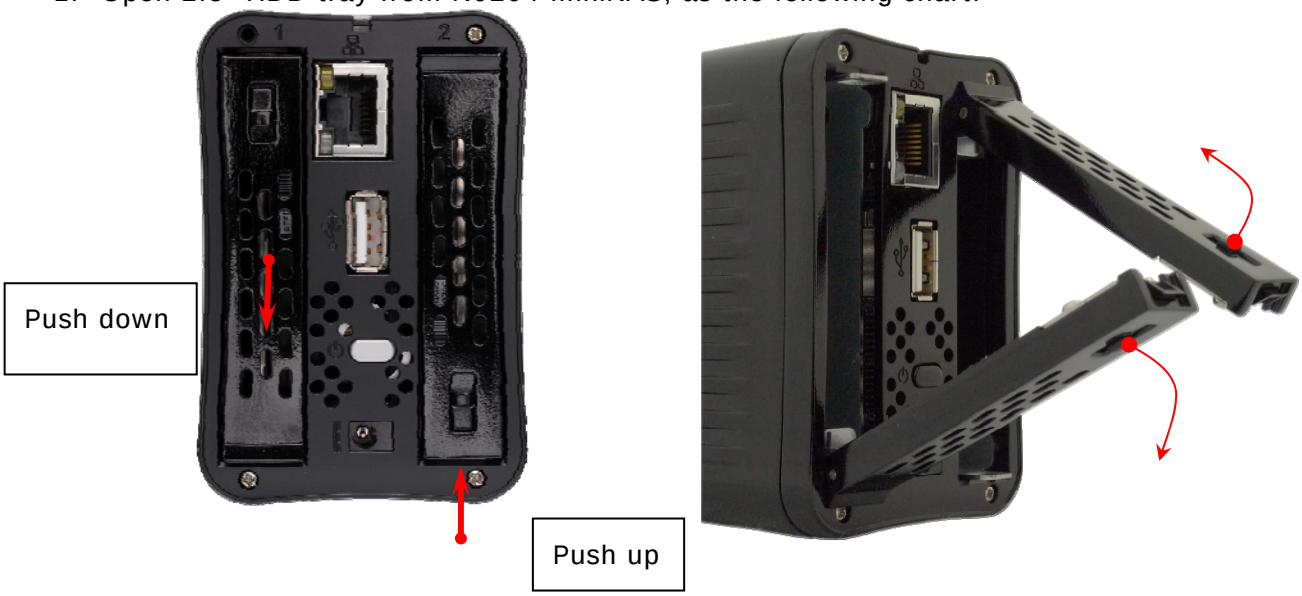
Before you begin, be sure to take the following precautions:

1. Read and understand the ***Safety Warnings*** outlined in the beginning of the manual.
2. If possible, wear an anti-static wrist strap during installation to prevent static discharge from damaging the sensitive electronic components on the N0204 miniNAS.
3. Be careful not to use magnetized screwdrivers around the N0204 miniNAS's electronic components.

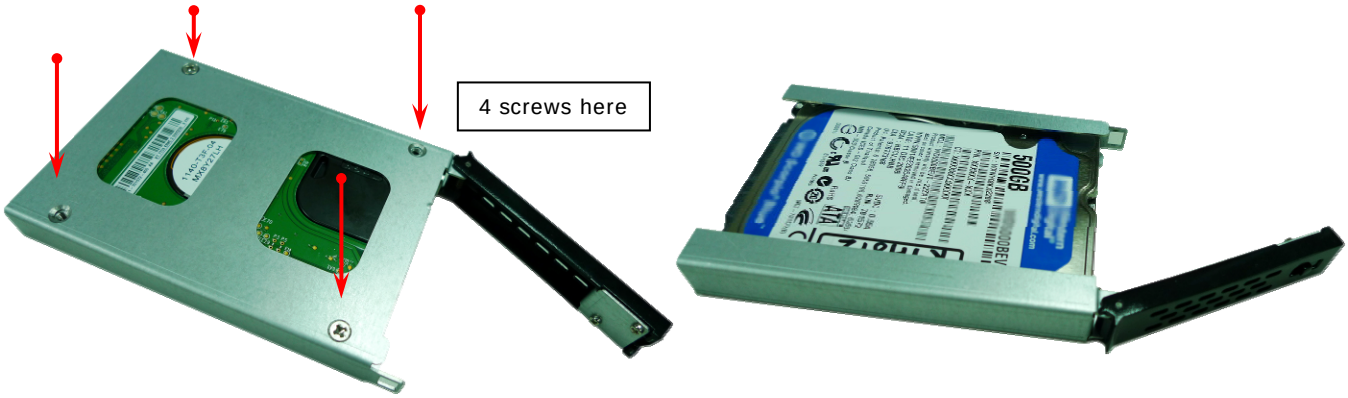
Hard Disk Installation

The N0204 miniNAS supports two standard 2.5" Serial ATA (SATA) hard disks. To install a hard disk into the N0204 miniNAS, follow the steps below:

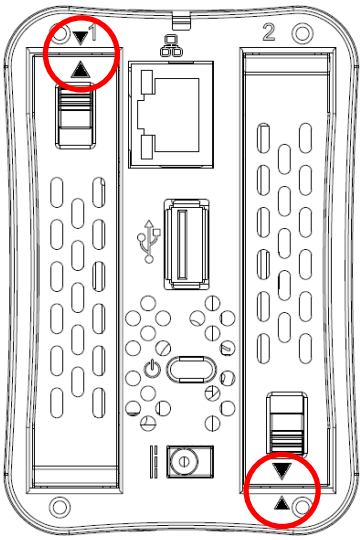
1. Open 2.5" HDD tray from N0204 miniNAS, as the following chart.



2. Install HDD on the tray, as the following chart:



3. Install the tray with HDD into N0204 miniNAS, please note that the HDD-1 is in left side and HDD-2 is in right side. The triangular symbol of tray must be corresponding with the triangular symbol of back panel. Push the tray back.

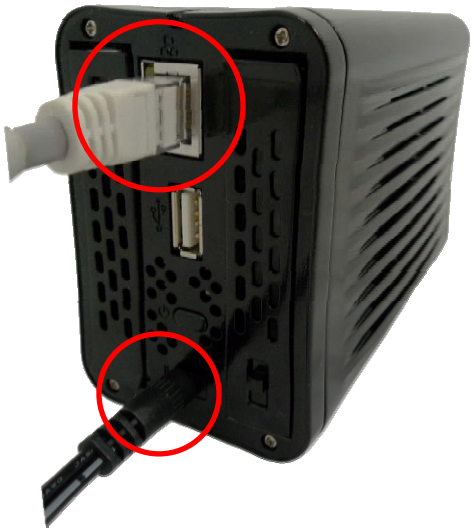


Cable Connections

To connect the N0204 miniNAS to your network, follow the steps below:

1. Connect an Ethernet cable from your network to the **LAN port** on the back panel of the N0204 miniNAS.

2. Connect the provided power adaptor into the **power socket** on the back panel. Plug the other end of the cord into a surge protector socket.



3. Press the **Power button** on the Rear end to boot up or shut down the N0204 miniNAS.

NOTE

1. USB copy LED will be flashed Blue light during the system are booting and will be dull after the booting complete.
2. To shut down the system, press the power button over 4 seconds, then USB copy LED will

Chapter 3: First Time Setup

Overview

Once the hardware is installed, physically connected to your network, and powered on, you can configure the N0204 miniNAS so that it is accessible to your network users. There is one way to set up your N0204 miniNAS: using the **Thecus Smart Utility**. Follow the steps below for initial software setup.

Thecus Smart Utility

The handy Thecus Smart Utility makes configuring N0204 miniNAS a snap. To configure the N0204 miniNAS using the Smart Utility, perform the following steps:

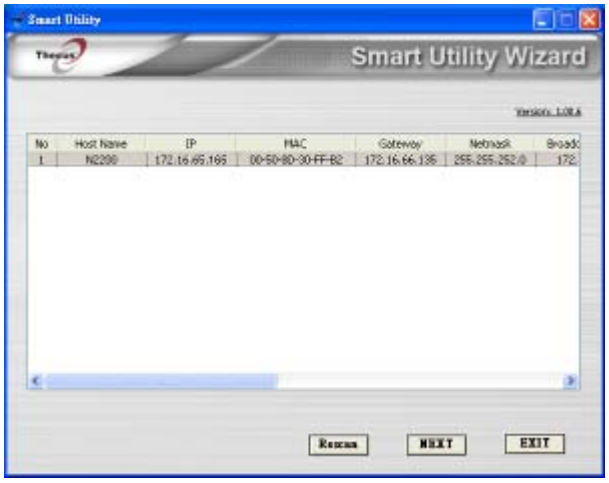
1. Insert the installation CD into your CD-ROM drive (the host PC must be connected to the network).

2. The Smart Utility should launch automatically. If not, please browse your CD-ROM drive and double click on **autorun.exe.** Click "**N0204**".

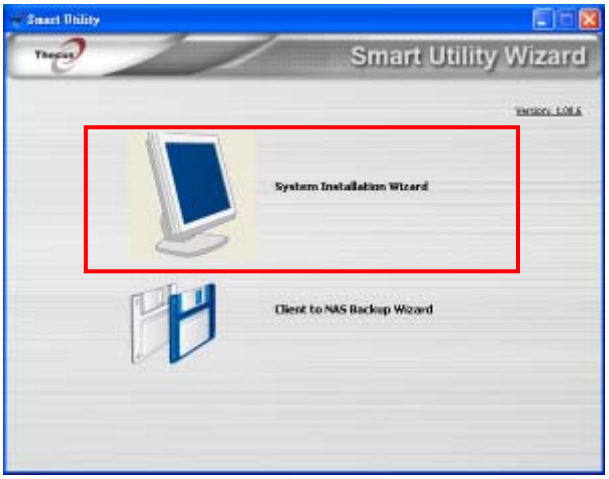
NOTE

For MAC OS X users, double click on **Thecus Smart Utility Wizard .pkg** file.

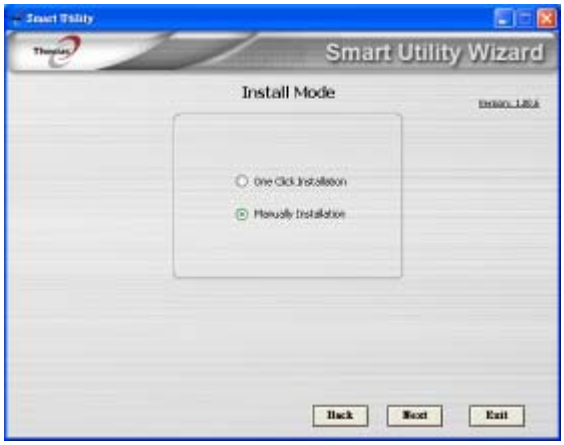
3. Select the N0204 *miniNAS* that you like to configure. Press Next to continue.



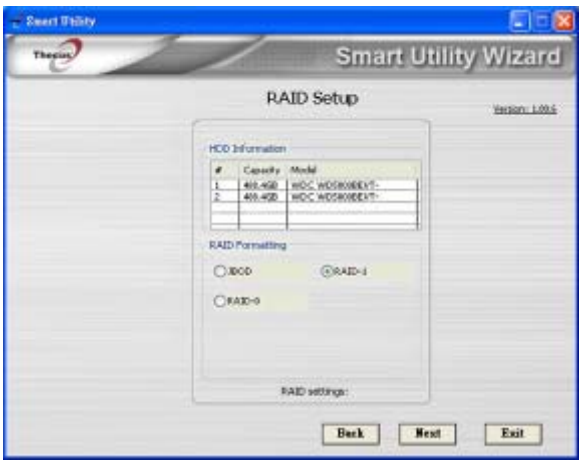
4. First, please select System Installation Wizard.



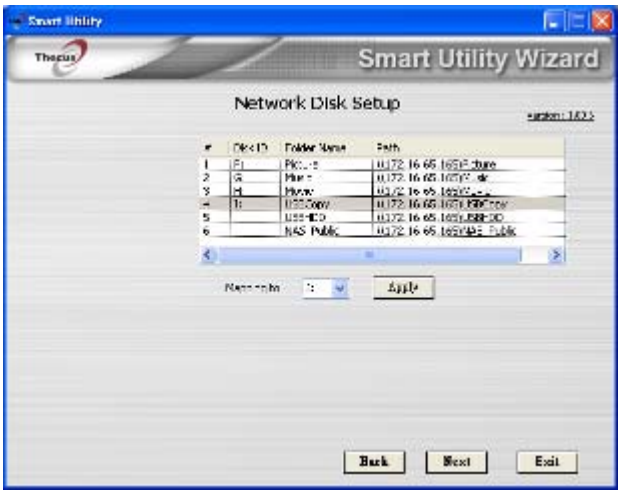
5. Please select your installation mode, **One Click Installation or Manual Installation**.



6. After your installed HDDs are detected, select your desired RAID level. Press **Next** to continue.

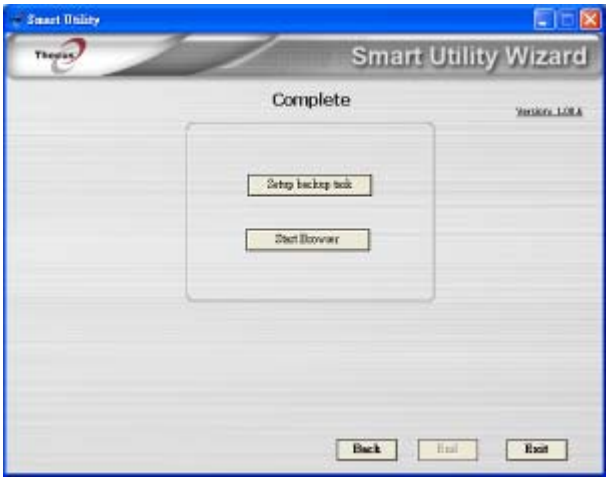


7. The N0204 miniNAS will automatically create several folders. Select your desired folder and map it to your local PC/NB as a Network Device.

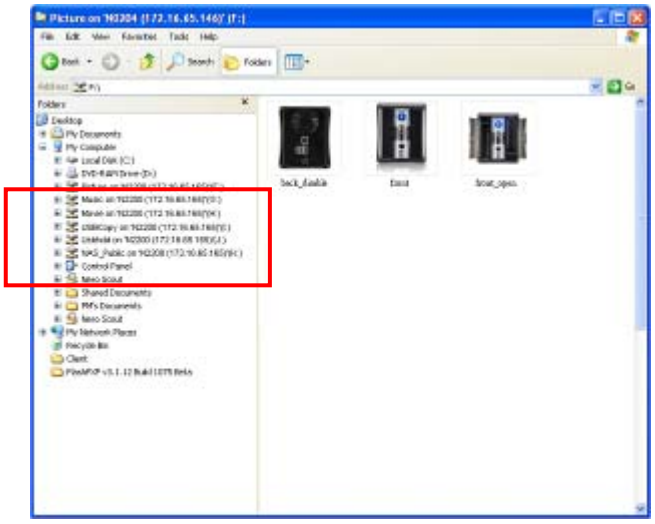


8. Complete the N0204 miniNAS Smart Utility Wizard.

A. You can access the N0204 miniNAS Web Administrator interface by clicking the **Start Brower** button. The default password is "**admin**". You can also setup a backup task at this point by clicking the **Setup backup task** button.



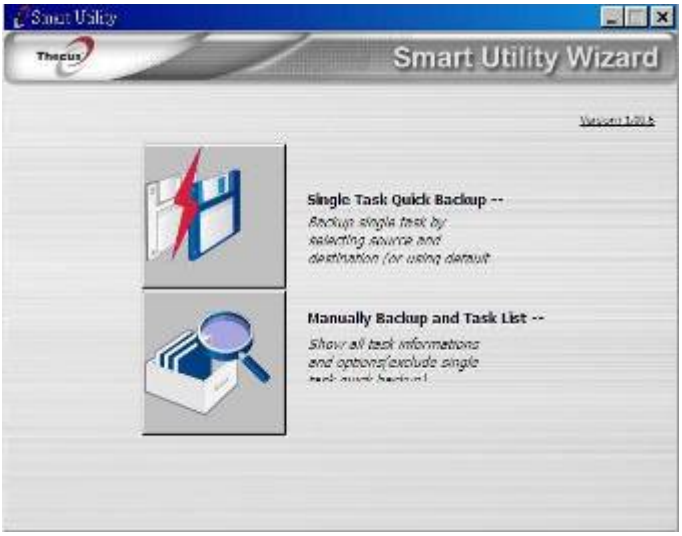
B. Press **Exit** to exit the windows utility.



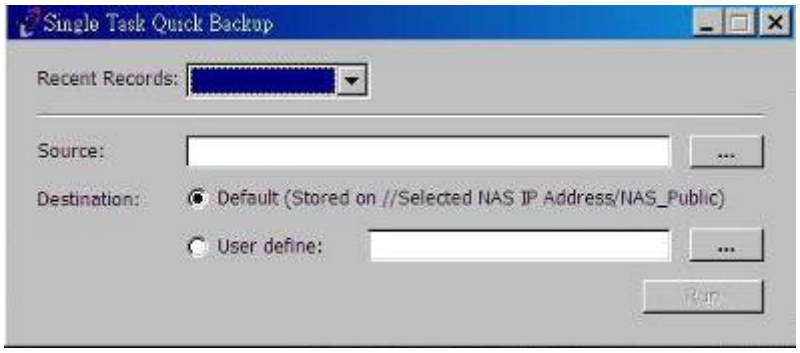
NOTE

The Thecus Smart Utility Wizard is designed for installation on systems running Windows XP/2000 or Mac OSX or later. Users with other operating systems will need to install the Thecus Smart Utility Wizard on a host machine with one of these operating systems before using the unit.

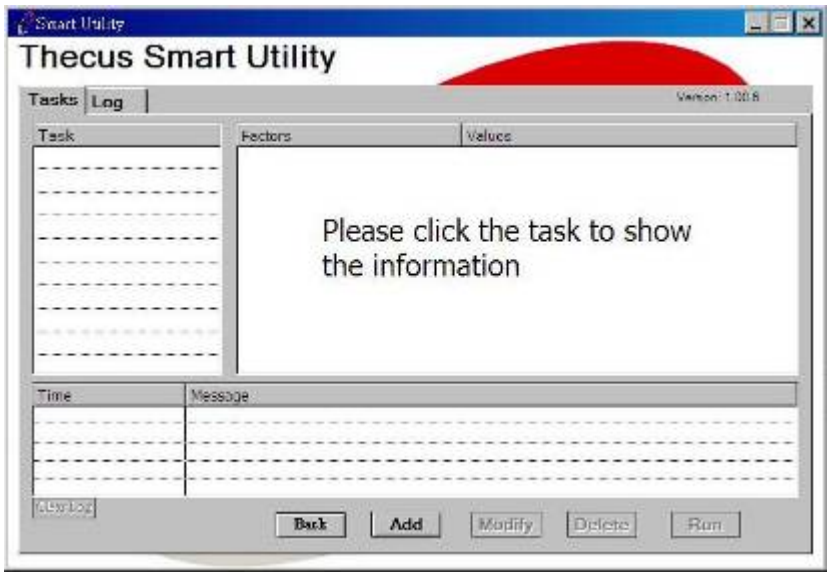
C. Press the **Setup backup task** button to configure backup tasks on your N0204.



• **Single Task Quick Backup:** Perform a single backup by selecting the source and destination.



• **Manually Backup and Task List:** Show all task information and options.

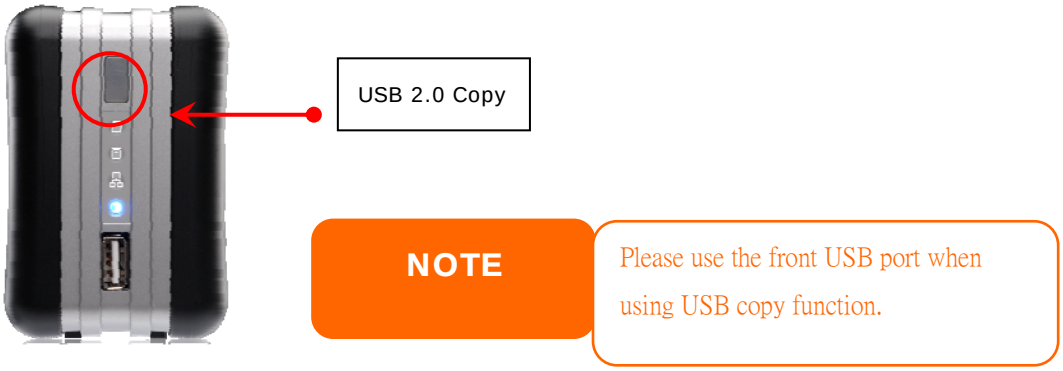


USB Copy

The USB Copy function enables you to copy files stored on USB devices such as USB disks and digital cameras to the N0204 miniNAS by press USB copy button. To use USB copy, follow the steps below:

1. Plug your USB device into USB2.0 port on the Front Panel.

2. Press USB copy Button and the N0204 miniNAS will start copying USB disks connected to the front end USB2.0 port.



3. The USB LED show
   - **Blinking Green:** Copy activity.
   - **Solid Green:** Copy Success.
   - **Solid Red:** Copy Fail.

Typical Setup Procedure

From the Web Administration Interface, you can begin to setup your N0204 for use on your network. Setting up the N0204 miniNAS typically follows the five steps outlined below.

For more on how to use the Web Administration Interface, see
Chapter 4: Web Administration Interface.

Step 1: Network Setup

From the Web Administration Interface, you can configure the network settings of the N0204 miniNAS for your network. You can access the **Network** menu from the menu bar.
For details on how to configure your network settings, refer to
Chapter 4: System Network.

Step 2: RAID Creation

Next, administrators can configure their preferred RAID setting and build their RAID volume. You can access RAID settings from the menu bar of the Web Administration Interface by navigating to **Storage Management > RAID Configuration.**

For more information on configuring RAID, see
Chapter 4: System Management > RAID Configuration.

Don't know which RAID level to use? Find out more about the different RAID levels from **Appendix C: RAID Basics**.

Step 3: Create Local Users or Setup Authentication

Once the RAID is ready, you can begin to create local users for the N0204 miniNAS, or choose to setup authentication protocols.

For more on managing users, go to **Chapter 4: User and Group Authentication**.

Step 4: Create Folders and Set Up ACLs

Once users are introduced into your network, you can begin to create various folders on the N0204 miniNAS and control user access to each using Folder Access Control Lists.

For more information on managing folders, see
Chapter 4: Storage Management > Share Folder.

To find out about configuring Folder Access Control Lists, see **Chapter 4: Storage Management > Share Folder> Folder Access Control List (ACL)**.

Step 5: Start Services

Finally, you can start to setup the different services of the N0204 miniNAS for the users on your network. You can find out more about each of these services by clicking below:

SMB/CIFS

Apple File Protocol (AFP)

Network File System (NFS)

File Transfer Protocol (FTP)

iTunes Server

Media Server

Printer Server

Photo Server

Chapter 4: System Administration

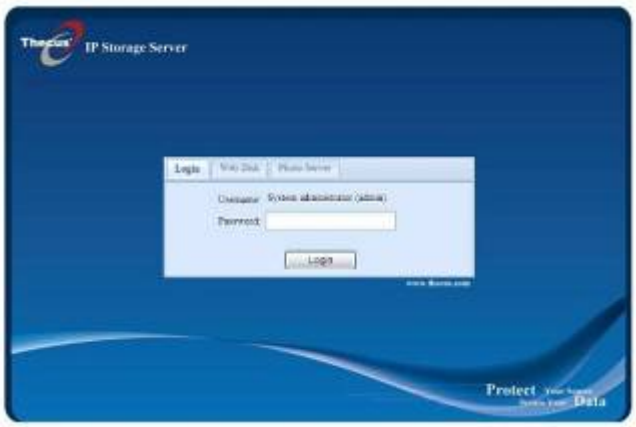
Overview

The N0204 miniNAS provides an easily accessible **Web Administration Interface**. With it, you can configure and monitor the N0204 miniNAS anywhere on the network.

Web Administration Interface

Make sure your network is connected to the Internet. To access the N0204 miniNAS **Web Administration Interface**:

1. Type the N0204's IP address into your browser. (Default IP address is `http://192.168.1.100`)



NOTE

Your computer's network IP address must be on the same subnet as the N0204. If the N0204 has default IP address of 192.168.1.100, your managing PC IP address must be 192.168.1.x, where x is a number between 1 and 254, but not *100*.

2. Login to the system using the administrator user name and password. The factory defaults are:

   User Name: `admin`
   Password: `admin`

Once you are logged in as an administrator, you will see the **Web Administration Interface**. From here, you can configure and monitor virtually every aspect of the N0204 miniNAS from anywhere on the network.

Menu Bar

The **Menu Bar** is where you will find all of the information screens and system settings of the N0204 miniNAS. The various settings are placed in the following groups on the menu bar:

Menu Bar	
Item	**Description**
System Information	Current system status of the N0204 miniNAS.
System Management	Various N0204 miniNAS system settings and information.
System Network	Information and settings for network connections, as well as various services of the N0204 miniNAS.
Storage	Information and settings for storage devices installed into the N0204 miniNAS.
User and Group Authentication	Allows configuration of users and groups.
Application Server	Printer Server and iTunes Server to set up of the N0204 miniNAS.
Module Management	System and user Module to install of the N0204 miniNAS.
Backup	Category of Backup Features set up of the N0204 miniNAS.

Moving your cursor over any of these items will display the dropdown menu selections for each group.

In the following sections, you will find detailed explanations of each function, and how to configure your N0204 miniNAS.

Message Bar

You can get information about system status quickly by moving mouse over.

Message Bar		
Item	**Status**	**Description**
	RAID Information.	Display the status of created RAID volume. Click to go to RAID information page as short cut.
	Disks Information.	Display the status of disks installed in the system. Click to go to Disk information page as short cut.
	FAN.	Display system FAN Status. Click to go to System Status page as short cut.

	Temperature.	Green: Systematic temperature is normal. Red: Systematic temperature is unusual. Click to go to System Status page as short cut.
	Network.	Green: Connection to network is normal. Red: abnormal connection to the network

Logout

Click to logout Web Administration Interface.

Language Selection

The N0204 miniNAS supports multiple languages, including:

- English
- Japanese
- Traditional Chinese
- Simplified Chinese
- French
- German
- Italian
- Korean
- Spanish
- Russia
- Polish

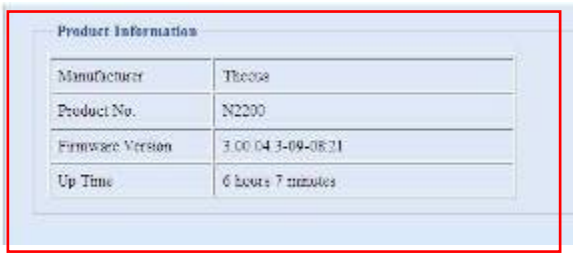
On the menu bar, click **Language** and the **selection** list appears. This user interface will switch to selected language for the N0204 miniNAS.

System Information

Information provides viewing on current Product info, System Status, Service Status and Logs.
The menu bar allows you to see various aspects of the N0204 miniNAS. From here, you can discover the status of the N0204 miniNAS, and also other details.

Product Information

Once you login, you will first see the basic **Product Information** screen providing **Manufacturer**, **Product No.**, **Firmware Version**, and **System Up Time** information.



Product Information	
Item	**Description**
Manufacturer	Displays the name of the system manufacturer.
Product No.	Shows the model number of the system.
Firmware version	Shows the current firmware version.
Up time	Displays the total run time of the system.

System/Service Status

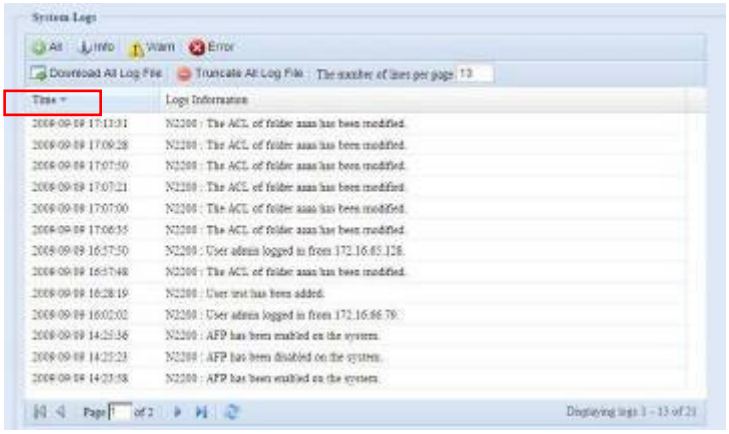
From the **Status** menu, choose the ***System*** item, **System Status** and **Service Status** screens appear. These screens provide basic system and service status information.

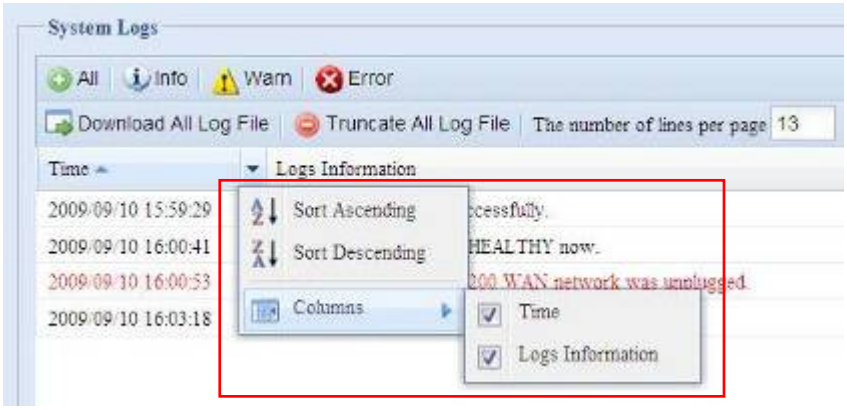
System Status	
Item	**Description**
CPU Loading (%)	Displays current CPU workload of the N0204 miniNAS .
System Fan Speed	Displays the current status of the system fan.
Up Time	Shows how long the system has been up and running.

Service Status	
Item	**Description**
AFP Status	The status of the Apple Filing Protocol server.
NFS Status	The status of the Network File Service Server.
SMB/CIFS Status	The status of the SMB/CIFS server.
FTP Status	The status of the FTP server.
Media Server	The status of the Media Server
Nsync Status	The status of the Nsync server.
UPnP Status	The status of the UPnP service.

Logs

From the **System Information** menu, choose the **Logs** item and the **System Logs** screen appears. This screen shows a history of system usage and important events such as disk status, network information, and system booting. See the following table for a detailed description of each item:



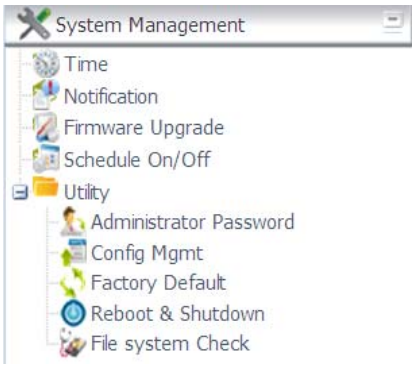


See the following table for a detailed description of each item:

System Logs	
Item	**Description**
All	Provides all log information including system messages, warning messages and error messages.
INFO	Records information about system messages.
WARN	Shows only warning messages.
ERROR	Shows only error messages.
Download All Log File	Export all logs to an external file.
Truncate All Log File	Clear all log files.
The number of lines per page ☐	Specify desired number of lines to display per page.
Sort Ascending	Shows logs by date in ascending order.
Sort Descending	Shows logs by date in descending order.
|<< < > >>|	Use the forward (**> >>|**) and backward (**|<< <**) buttons to browse the log pages.
	Refresh the logs.

System Management

The **System Management** menu gives you a wealth of settings that you can use to configure your N0204's system administration functions. You can set up system time, system notifications, and even upgrade firmware from this menu.



Time: Setting System Time

From the **Time** menu, choose the **Time** item and the **Time** screen appears. Set the desired **Date**, **Time**, and **Time Zone**. You can also elect to synchronize the system time on the N0204 with an **NTP (Network Time Protocol) Server**.

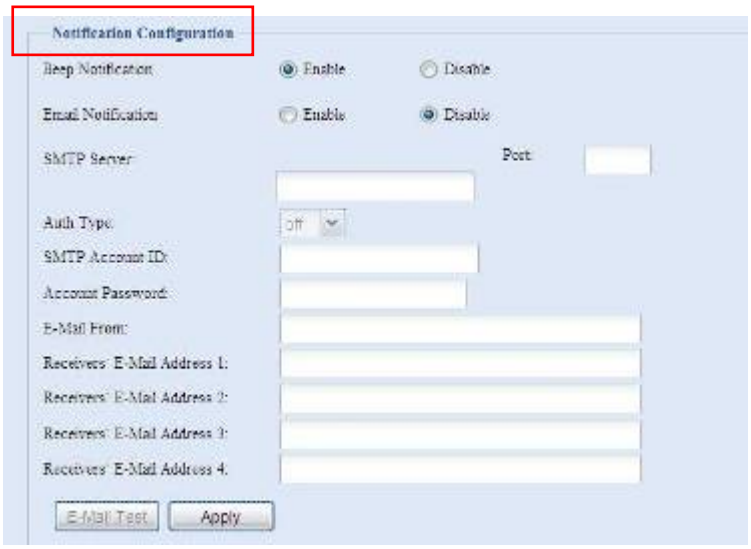
See the following table for a detailed description of each item:

Time	
Item	**Description**
Date	Sets the system date.
Time	Sets the system time.
Time Zone	Sets the system time zone.
Sync with external NTP Server	Select **YES** to allow the N0204 miniNAS to synchronize with an NTP server of your choice. Press **Apply** to change.

WARNING If an NTP server is selected, please make sure your N0204's network has been setup to access the NTP server.

Notification Configuration

From the menu, choose the ***Notification*** item, and the **Notification Configuration** screen appears. This screen lets you have the N0204 miniNAS notify you in case of any system malfunction. Press ***Apply*** to confirm all settings. See following table for a detailed description of each item.



Notification Configuration	
Item	**Description**
Beep Notification	Enable or disable the system beeper that beeps when a problem occurs.
Email Notification	Enable or disable email notifications of system problems.
Account Password	Enter a new password.
E-mail From	Set email address to send email.
Receiver's E-mail Address (1,2,3,4)	Add one or more recipient's email addresses to receive email notifications.

NOTE Consult with your mail server administrator for email server information.

Firmware Upgrade

From the menu, choose the ***Firmware Upgrade*** item and the **Firmware Upgrade** screen appears.

Follow the steps below to upgrade your firmware:

1. Use the ***Browse*** button to find the firmware file.
2. Press ***Apply***.
3. The beeper beeps and the Busy LED blinks until the upgrade is complete.

NOTE

- The beeper only beeps if it is enabled in the System Notification menu.
- Check Thecus website for the latest firmware release and release notes.
- Downgrading firmware is not permitted.

WARNING

Do not turns off the system during the firmware upgrade processing.
This will lead to a catastrophic result that may render the system inoperable.

Schedule Power On/Off

Using the N0204 miniNAS's System Management, you can save energy and money by scheduling the N0204 to turn itself on and off during certain times of the day.

From the menu, choose the **Schedule Power On/Off** item and the **Schedule Power On/Off** screen appears.

To designate a schedule for the N0204 miniNAS to turn on and off, first enable the feature by checking the **Enable Schedule Power On/Off** checkbox.

Then, simply choose an on and off time for each day of the week that you would like to designate a schedule by using the various dropdowns.

Finally, click ***Apply*** to save your changes.

Example - Monday: On: 8:00; Off: 16:00
System will turn on at 8:00 AM on Monday, and off at 16:00 on Monday. System will turn on for the rest of the week.

If you choose an on time, but do not assign an off time, the system will turn on and remain on until a scheduled off time is reached, or if the unit is shutdown manually.

Example - Monday: On: 8:00
System will turn on at 8:00 AM on Monday, and will not shut down unless powered down manually.

You may also choose two on times or two off times on a particular day, and the system will act accordingly.

Example - Monday: Off: 8:00; Off: 16:00
System will turn off at 8:00 AM on Monday. System will turn off at 16:00 PM on Monday, if it was on. If the system was already off at 16:00 PM on Monday, system will stay off.

Utility

Administrator Password

From the menu, choose the **Administrator Password** item and the **Change Administrator Password** screen appears. Enter a new password in the **New Password** box and confirm your new password in the **Confirm Password** box. Press ***Apply*** to confirm password changes.

See the following table for a detailed description of each item.

Change Administrator and LCD Entry Password	
Item	**Description**
New Password	Type in a new administrator password.
Confirm Password	Type the new password again to confirm.
Apply	Press this to save your changes.

Config Mgmt

From the menu, choose the ***Config Mgmt*** item and the **System Configuration Download / Upload** screen appears. From here, you can download or upload stored system configurations.

See the following table for a detailed description of each item.

System Configuration Download / Upload	
Item	**Description**
Download	Save and export the current system configuration.
Upload	Import a saved configuration file to overwrite current system configuration.

NOTE

Backing up your system configuration is a great way to ensure that you can revert to a working configuration when you are experimenting with new system settings. The system configuration you have backup can be only restore in same firmware version. And the backup details have excluded user/group accounts.

Factory default

From the menu, choose the ***Factory Default*** item and the **Reset to Factory Default** screen appears. Press ***Apply*** to reset the N0204 miniNAS to factory default settings.

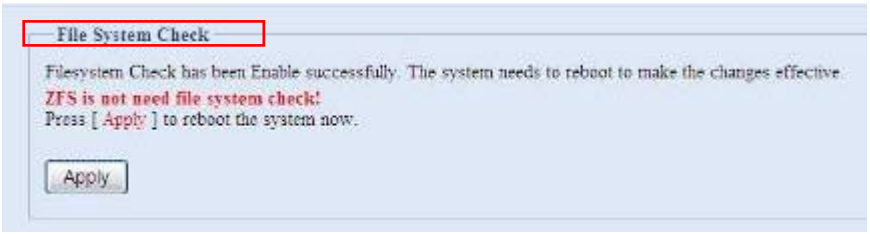
WARNING Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.

Reboot & Shutdown

From the menu, choose **Reboot & Shutdown** item, and the **Shutdown/Reboot System** screen appears. Press ***Reboot*** to restart the system or ***Shutdown*** to turn the system off.

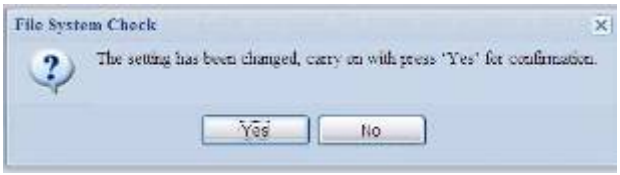
File System Check

The File System Check allows you to perform a check on the integrity of your disks' file system. Under the menu, click ***File system Check*** and the **File System Check** prompt appears.

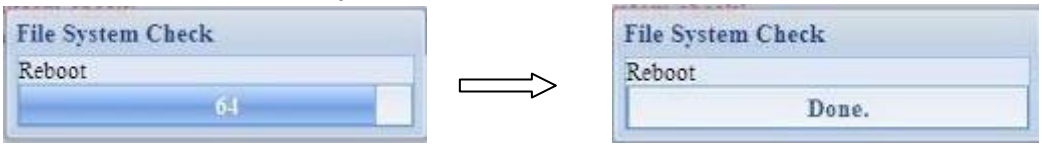

File System Check
Filesystem Check has been Enable successfully. The system needs to reboot to make the changes effective.
ZFS is not need file system check!
Press [Apply] to reboot the system now.
Apply

To perform a file system check, click ***Apply***.

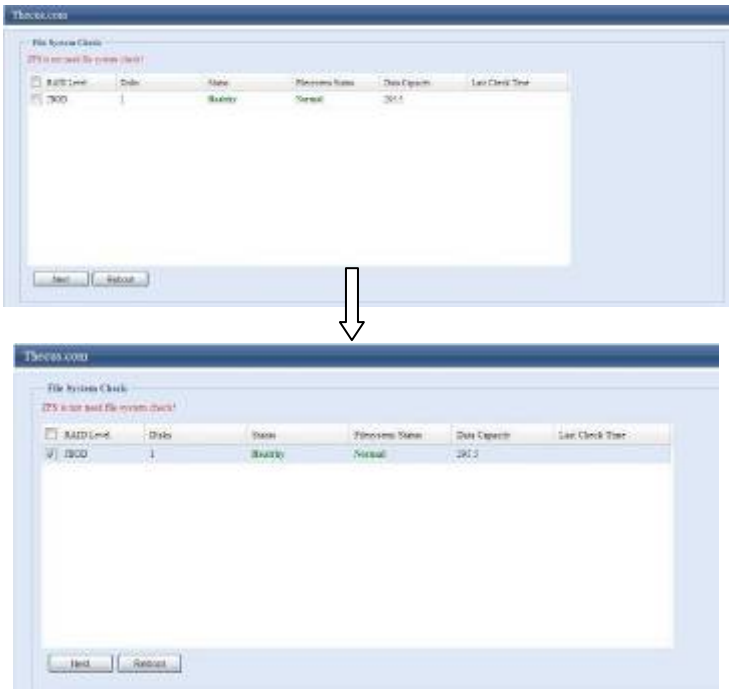
Once clicked, the following prompt will appear:



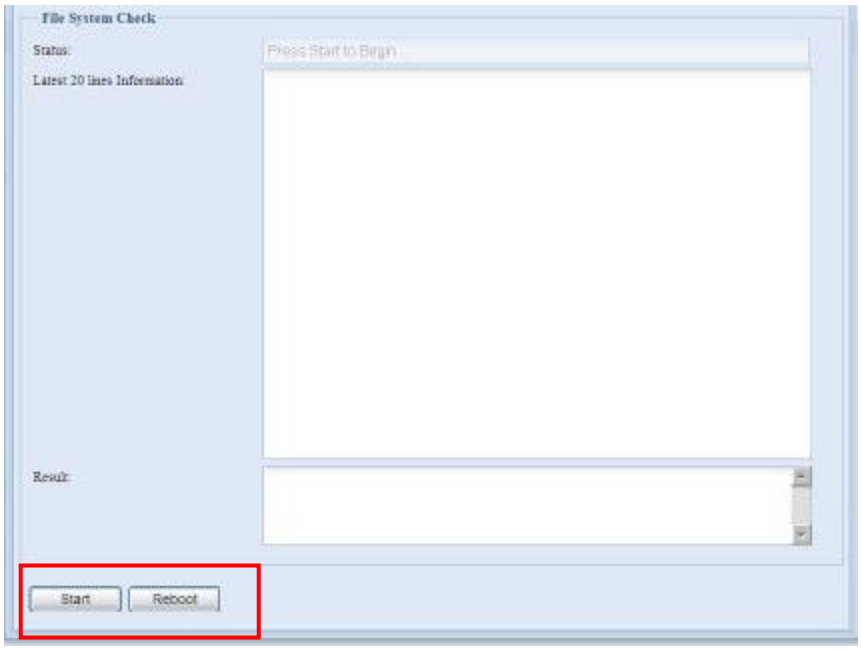
Click ***Yes*** to reboot the system.



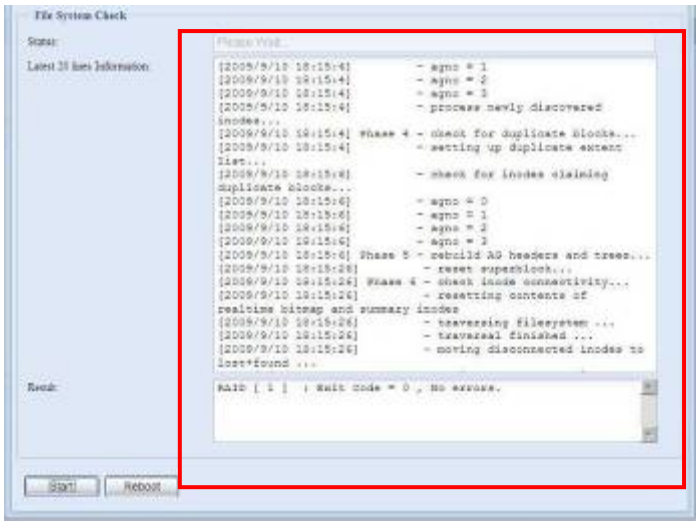
Once the system has rebooted, you will be returned to the **File System Check** prompt. Check the desired RAID volumes and click ***Next*** to proceed with the file system check. Click ***Reboot*** to reboot without running the check.



Once you click ***Next***, you will see the following screen:



Click ***Start*** to begin the file system check. Click ***Reboot*** to reboot the system. When the file system check is run, the system will show 20 lines of information until it is complete. Once complete, the results will be shown at the bottom.



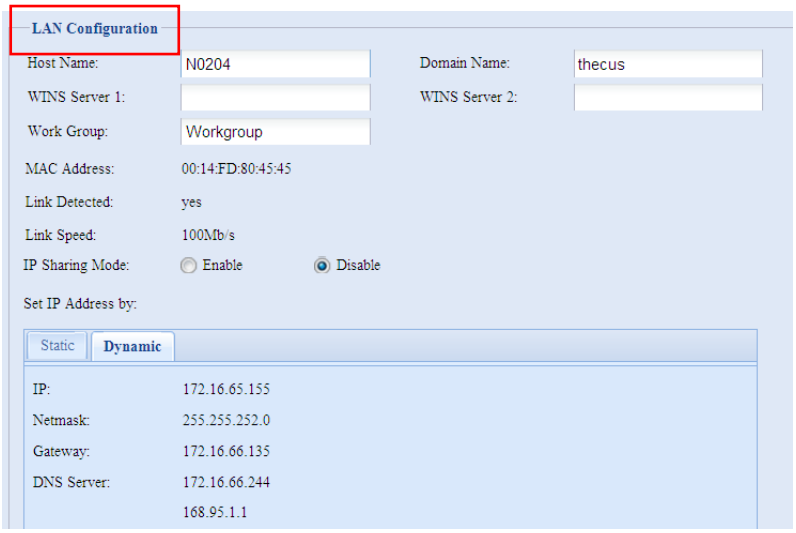
NOTE The system must be rebooted before the N0204 can function normally after file system check complete.

System Network

Use the **System Network** menu to make network configuration settings as well as service support settings.

LAN Configuration

From the **System Network** menu, choose ***LAN***, and the **LAN Configuration** screen appears. This screen displays the network parameters of the LAN connection. You may change any of these items and press ***Apply*** to confirm your settings. See a description of each item in the following table:



LAN Configuration	
Item	**Description**
Host name	Host name that identifies the N0204 miniNAS on the network.
Domain name	Specifies the domain name of the N0204 miniNAS.
WINS Server	To set a server name for NetBIOS computer.
MAC Address	MAC address of the network interface.
IP Sharing Mode	When enabled, PCs connected to the LAN port will be able to access the LAN.
Set IP Address by: Static / Dynamic	You can choose a static IP or Dynamic IP, and input your network configuration.
IP	IP address of the LAN interface.
Netmask	Network mask, which is generally: 255.255.255.0
Gateway	Default Gateway IP address.
DNS Server	Domain Name Service (DNS) server IP address.

NOTE

- Enabling DHCP automatically turns on UPnP— see the Service Support Screen.
- A correct DNS setting is vital to networks services, such as NTP.

Samba / CIFS

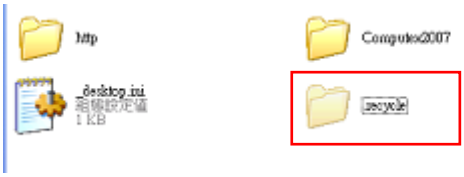
There are 2 options is currently allow Admin to Enable/Disable to operate N0204 miniNAS associated with Samba / CIFS protocol. With the option changed, it will need to reboot system to activate.

Samba Service

Used for letting the operating system of UNIX series and SMB/CIFS of Microsoft Windows operating system (Server Message Block / Common Internet File System).Do the link in network protocol. Enable or Disable SMB/CIFS protocol for Windows, Apple, Unix drive mapping.

Samba Recycle Bin

The N0204 miniNAS is supported recycle bin via SMB/CIFS protocol. Simply enable it then all of deleted files/folders will reside in the ".recycle" folder with hidden attribution in each share.



In general, Windows has default to invisible all of hidden folders/files. So please enable this option to view ".recycle" folder.

AFP (Apple Network Setup)

From the **System Network** menu, choose the ***AFP*** item, and the **AFP Support** screen appears. This screen displays the configuration items for the Apple Filing Protocol. You can change any of these items and press ***Apply*** to confirm your settings.

A description of each item follows:

Apple Network Configuration	
Item	**Description**
AFP Server	Enable or disable Apple File Service to use the N0204 miniNAS with MAC OS-based systems.
Zone	Specifies Zone for Applet Talk service. If your AppleTalk network uses extended networks and is assigned with multiple zones, assign a zone name to the N0204 miniNAS. If you do not want to assign a network zone, enter an asterisk (*) to use the default setting.

NFS Setup

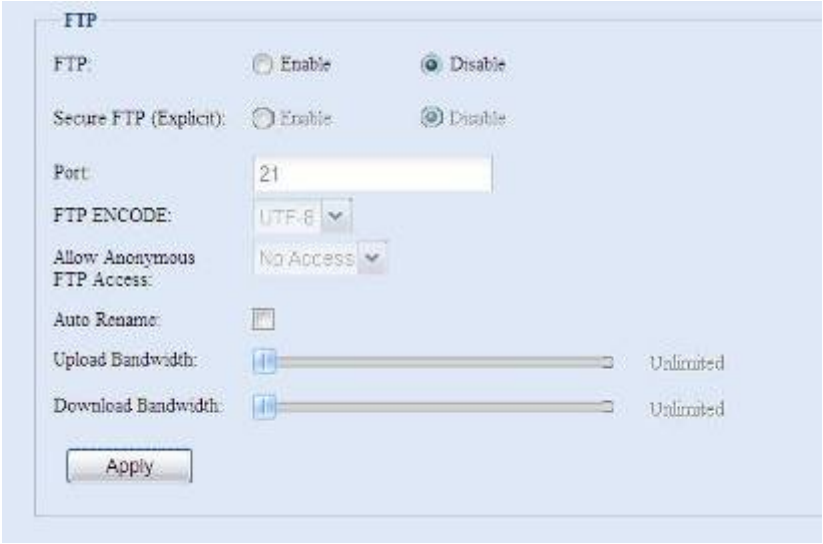
From the **System Network** menu, choose the ***NFS*** item, and the **NFS Support** screen appears. The N0204 can act as an NFS server, enabling users to download and upload files with the favorite NFS clients. Press ***Apply*** to confirm your settings.

A description of each item follows:

NFS Server Setting	
Item	**Description**
NFS	**Enable** or **Disable** NFS support.
Apply	Click ***Apply*** to save your changes.

FTP

N0204 can act as a FTP server, enabling users to download and upload files with their favorite FTP programs. From the **System Network** menu, choose the ***FTP*** item, and the **FTP** screen appears. You can change any of these items and press ***Apply*** to confirm your settings.



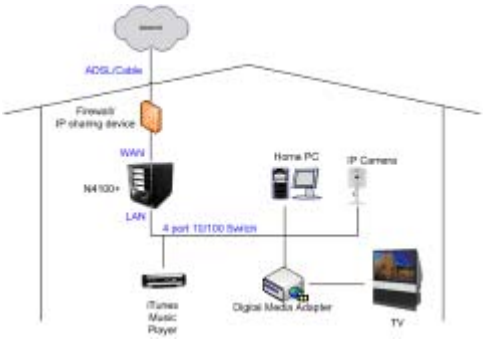
A description of each item follows:

FTP	
Item	**Description**
FTP	Enable FTP Service on the N0204 miniNAS.
Security FTP	Enable or disable Security FTP, be sure the client FTP software has also security FTP setting enabled.
Port	Specifies the port number of an incoming connection on a non-standard port.
FTP ENCODE	If your FTP client or operating system does not support Unicode (e.g. Windows® 95/98/ME or MAC OS9/8), select the same encoding as your OS here in order to properly view the files and directories on the server. Available options are BIG5, HZ, GB2312, GB18030, ISO, EUC-JP, SHIFT-JIS and UTF-8.
Allow Anonymous FTP	**Upload / Download:** Allow anonymous FTP users to upload or

Access	download files to/from public folders. **Download:** Allow anonymous FTP users to download files from public folders. **Upload only:** Allow anonymous FTP users to upload files from public folders. **No access:** Block anonymous FTP user access.
Auto Rename	If checked, the system will automatically rename files that are uploaded with a duplicate file name. The renaming scheme is `[filename].#`, where # represents an integer.
Upload Bandwidth	You may set the maximum bandwidth allocated to file uploads. Selections include **Unlimited, 1, 2, 4, 8, 16** and **32 MB/s.**
Download Bandwidth	You may set the maximum bandwidth allocated to file downloads. Selections include **Unlimited, 1, 2, 4, 8, 16** and **32 MB/s.**

To access the share folder on the N0204, use the appropriate user login and password set up on the **Users** page. Access control to each share folder is set up on the **ACL** page (***Storage Management*** > **Shore *Folder*** > ***ACL***).

Media Server



With the built-in Media Server capability, the N0204 miniNAS provides media streaming service to stand-alone networked home media adapters that support the UPnP AV protocol or are Digital Living Network Alliance (DLNA) standard compliant.

With the N0204 miniNAS 's built-in media server capability, you can share digital media such as music, pictures, and movies with any compatible device throughout your entire home.

Media Manager Settings

To configure the media server, under the **System Network** menu, click Media Server and the Media Manager Settings window will appear.

A description of each field follows:

Media Manager Settings	
Item	**Description**
Media Server	Enable or disable the Media Server service.

Shared Media Folders	Select the folder(s) that contains media files to be shared.
Rescan	Click the ***Rescan*** button to have the N0204 miniNAS for new contents in the selected media folder.

Shared Media Folders

Once the Media Server software is installed, you can start adding folders that contain the media that you would like to share. To create a media share folder, follow the steps below:

1. Click on **System *Network*** > ***Media Server*** in the menu bar.

2. From the **Shared Media Folders** window, select the folder that contains your media files, and click its checkbox.

3. The contents in the folder will be scanned for the Media Server. The time required for scanning depends on the size of the folder.

Connecting DMAs to the Media Server

Next, it's time to connect your Digital Media Adapter (DMA) to the media server:

1. Connect your DMA to your Media Server

    a. Configure your DMA to use a Dynamic IP address. The IP address will be assigned by the router.

    b. Some DMAs are wireless enabled. You can connect the DMA to a wireless router. For instructions on how to connect your DMA to a wireless router, please refer to your DMA's user manual.

2. Connect your DMA's video output to video input of your TV set.

3. Turn on the TV and change the video signal input to DMA.

4. Setup the DMA (These steps will be different if you use a different DMA)

    a. From the Server List screen, select "**N0204: Media Server**" as the server.
    b. Go to **My Media**
    c. Click on the **Up / Down Arrow** buttons to select **Music Jukebox**, **Photo Albums**, or **Video Clips**
    d. Start enjoying the contents stored in your N0204.

HTTP/ Web Disk

From the **System Network** menu, choose the **HTTP / Web Disk** item, and the **Web Disk (HTTP) Support** screen appears. This screen displays the service support parameters of the system. You can change any of these items and press ***Apply*** to confirm your settings.

A description of each item follows:

Web Service	
Item	**Description**
HTTP (WebDisk) Support	Enable or disable WebDisk support. Enter the port number if this option is enabled. The port number is default 80.
HTTPs (Secure WebDisk) Support	Enable or disable secure WebDisk support. Enter the port if this option is enabled.

NOTE

- Disable HTTP support and Enable Secure HTTP support to guarantee secure access.

UPnP

This device supports UPnP Media server, which allows users to play media files with UPnP client (ex. DMA devices). Enable or disable Universal Plug and Play protocol. UPnP helps to find the IP address of the N0204 miniNAS.

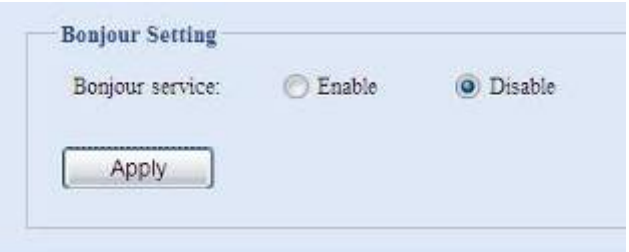
Nsync Target

From the **System Network** menu, choose the **Nsync Target** item, and the **Nsync Setting** screen appears. Enable or Disable your Nsync Target Server and press ***Apply*** to confirm your settings.

Once **Nsync Target** has been enabled, other Thecus NAS products able to operate remote replication to this NAS system.

Bonjour Setting

Bonjour is Apple Inc.'s trade name for its implementation of Zeroconf, a service discovery protocol. Bonjour locates devices such as printers, as well as other computers, and the services that those devices offer on a local network using multicast Domain Name System service records.



Storage Management

The **Storage** menu displays the status of storage devices installed in the N0204, and includes storage configuration options such as RAID and disk settings, folder configuration, space allocation and ISO Mount.

Disks Information

From the **Storage** menu, choose the ***Disks*** item and the **Disks Information** screen appears. From here, you can see various items about installed SATA hard disks. Blank lines indicate that a SATA hard disk is not currently installed in that particular disk slot.

Disks Information	
Item	**Description**
Disk No.	Indicates disk location.
Capacity	Shows the SATA hard disk capacity.
Model	Displays the SATA hard disk model name.
Firmware	Shows the SATA hard disk firmware version.
Status	Indicates the status of the disk. Can read **OK**, **Warning**, or **Failed**.
Bad Block Scan	Click **Yet to start** to begin scanning for bad blocks.
Total Capacity	Shows the total SATA hard disk capacity.
Disk Power Management	The administrator can set the disk to power down after a period of inactivity.

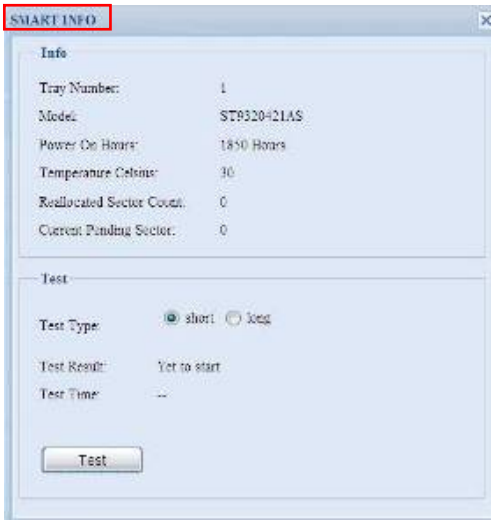
NOTE

When the Status shows Warning, it usually means there are bad sectors on the hard disk. It is shown only as a precaution and you should consider changing the drives.

S.M.A.R.T. Information

On the **Disks Information** screen, the status of each disk will be displayed in the **Status** column. Clicking on an ***OK*** or ***Warning*** link will display the **S.M.A.R.T Information** window for that particular disk.

You may also perform disk SMART test, simply to click “Test” to start with. The result is only for reference and system will not take any action from its result.



S.M.A.R.T. Information	
Item	**Description**
Tray Number	Tray the hard disk is installed in.
Model	Model name of the installed hard disk.
Power ON Hours	Count of hours in power-on state. The raw value of this attribute

	shows total count of hours (or minutes, or seconds, depending on manufacturer) in power-on state.
Temperature Celsius	The current temperature of the hard disk in degrees Celsius
Reallocated Sector Count	Count of reallocated sectors. When the hard drive finds a read/write/verification error, it marks this sector as "reallocated" and transfers data to a special reserved area (spare area). This process is also known as remapping and "reallocated" sectors are called remaps. This is why, on a modern hard disks, you can not see "bad blocks" while testing the surface - all bad blocks are hidden in reallocated sectors. However, the more sectors that are reallocated, the more a decrease (up to 10% or more) can be noticed in disk read/write speeds.
Current Pending Sector	Current count of unstable sectors (waiting for remapping). The raw value of this attribute indicates the total number of sectors waiting for remapping. Later, when some of these sectors are read successfully, the value is decreased. If errors still occur when reading sectors, the hard drive will try to restore the data, transfer it to the reserved disk area (spare area), and mark this sector as remapped. If this attribute value remains at zero, it indicates that the quality of the corresponding surface area is low.
Test Type	Set short or long time to test.
Test Result	Result of the test.
Test Time	Total time of the test.

NOTE

If the Reallocated Sector Count > 32 or Current Pending Sector of a hard disk drive > 0 , the status of the disk will show “Warning”. This warning is only used to alert the system administrator that there are bad sectors on the disk, and they should replace those disks as soon as possible.

Bad Block Scan

On the **Disks Information** screen, you may also perform a disk bad block scan. Simply click **Yet to start** to begin scanning. The result is only for reference and system will not take any action from its result.

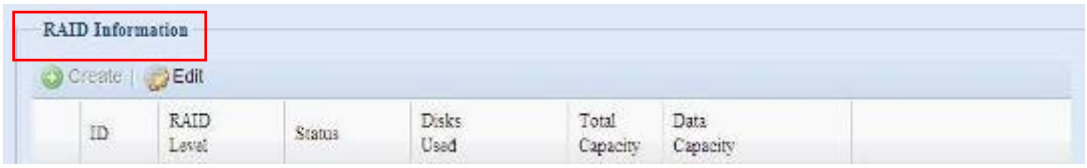
The testing result will be stay until the next system reboot with “Yet to start” displayed as default.

RAID Information

From the **Storage** menu, choose the ***RAID*** item and the **RAID Information** screen appears.

This screen lists the RAID volumes currently residing on the N0204. From this screen, you can get information about the status of your RAID volumes, as well as

the capacities allocated for data. There is also a graph which represents how the RAID volume is currently allocated.

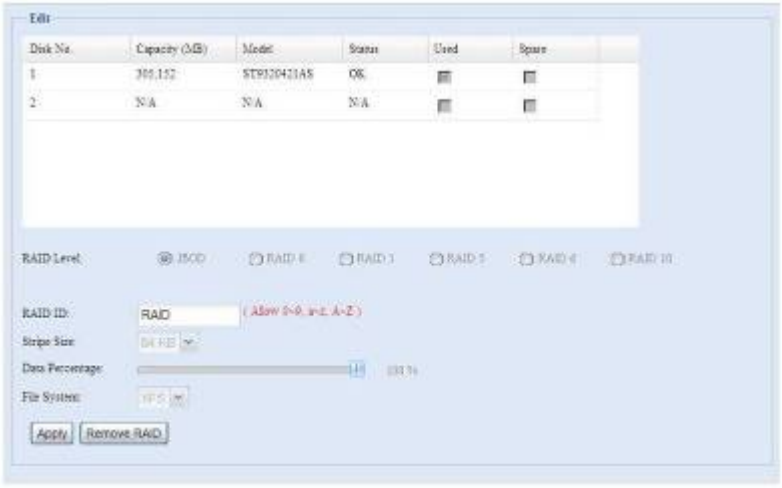


RAID Information	
Item	**Description**
ID	ID of the current RAID volume. **NOTE: All RAID IDs must be unique.**
RAID Level	Shows the current RAID configuration.
Status	Indicates status of the RAID. Can read either ***Healthy***, ***Degraded***, or ***Damaged***.
Disks Used	Hard disks used to form the current RAID volume.
Total Capacity	Total capacity of the current RAID.
Data Capacity	Indicates the used capacity and total capacity used by user data.

Create a RAID

On the **RAID Information** screen, press the ***create*** button to go to the **CREATE RAID** screen. In addition to RAID disk information and status, this screen lets you make RAID configuration settings.

Using **Create RAID**, you can select stripe size, choose which disks are RAID disks or the Spare Disk.



RAID Configurations	
Item	**Description**
Disk No.	Number assigned to the installed hard disks.
Capacity (MB)	Capacity of the installed hard disks.
Model	Model number of the installed hard disks.
Status	Status of the installed hard disks.
Used	If this is checked, current hard disk is a part of a RAID volume.
Spare	If this is checked, current hard disk is designated as a spare for a RAID volume.
Stripe Size	This sets the stripe size to maximize performance of sequential files in a storage volume. Keep the 64K setting unless you require

	a special file storage layout in the storage volume. A larger stripe size is better for large files.
Data Percentage	The percentage of the RAID volume that will be used to store data.
Create	Press this button to configure a file system and create the RAID storage volume.

To create a RAID volume, follow the steps below:

1. On the **RAID Information** screen, click ***create***.
2. On the **RAID Configuration** screen, set the RAID storage space as **JBOD**, **RAID 0**, **RAID 1**— see **Appendix C: RAID Basics** for a detailed description of each.
3. Specify a RAID ID.
4. Specify a stripe size — 64K is the default setting.
5. Specify the percentage allocated for user data by drag the horizontal bar.
6. Press ***Create*** to build the RAID storage volume.

NOTE Building a RAID volume may take time, depending on the size of hard drives and RAID mode. In general, while the RAID volume building process is up to "RAID Building" then the data volume is capable to be accessed.

WARNING Creating RAID destroys all data in the current RAID volume. The data is unrecoverable.

RAID Level

You can set the storage volume as **JBOD**, **RAID 0**, **RAID 1**. RAID configuration is usually required only when you first set up the device. A brief description of each RAID setting follows:

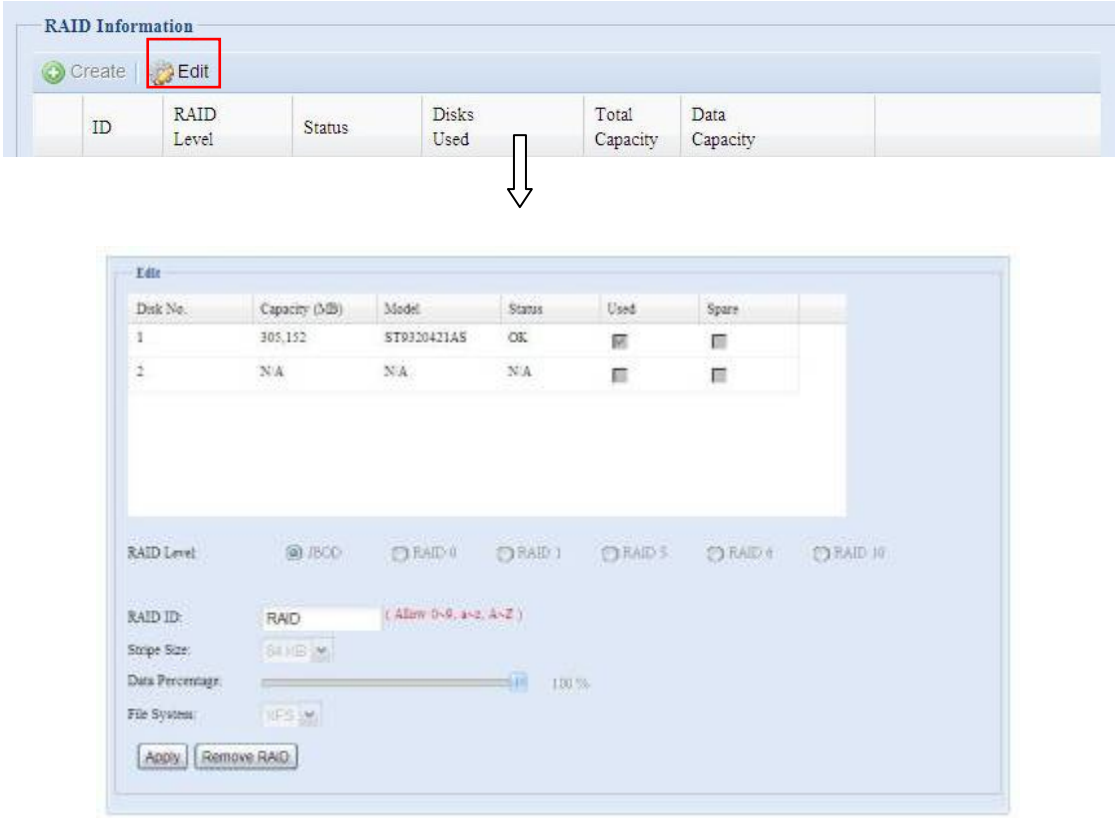
RAID Levels	
Level	**Description**
JBOD	The storage volume is a single HDD with no RAID support. JBOD requires a minimum of 1 disk.
RAID 0	Provides data striping but no redundancy. Improves performance but not data safety. RAID 0 requires a minimum of 2 disks.
RAID 1	Offers disk mirroring. Provides twice the read rate of single disks, but same write rate. RAID 1 requires a minimum of 2 disks.

WARNING If the administrator improperly removes a hard disk that should not be removed when RAID status is degraded, all data will be lost.

Edit RAID

On the **RAID Information** screen, press the ***Edit*** button to go to the **RAID Information** screen.

Using **Edit RAID**, you can select RAID ID and the Spare Disk. .



Remove RAID

Click to remove the RAID volume. All user data has been created in selected RAID volume will be removed.

To remove a RAID volume, follow the steps below:

1. On the RAID List screen, select the RAID volume by clicking on its radio button, and click ***RAID Information*** to open the **RAID Configuration** screen.

2. On the **RAID Configuration** screen, click ***Remove RAID***.

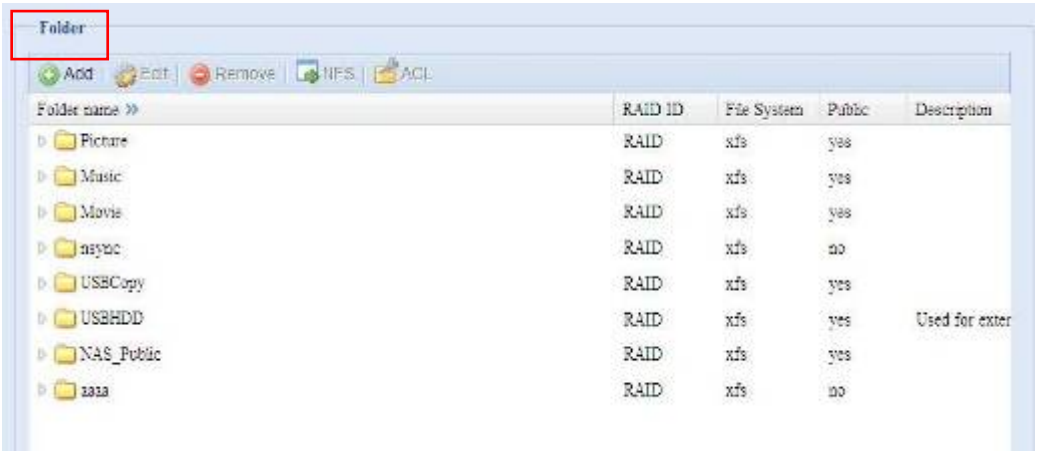
3. The confirmation screen appear, you will have to input “Yes” with exactly wording case to complete “**Remove RAID**” operation

WARNING Remove RAID destroys all data in the current RAID volume. The data is unrecoverable.

NOTE When expanding RAID or replacing HDD and the system is not responding, please reboot NAS to start auto-rebuild.

Share Folder

From the **Storage** menu, choose **Share *Folder***, and the **Folder** screen appears. This screen allows you to create and configure folders on the N0204 miniNAS volume.



Adding Folders

On the **Folder** screen, press the ***Add*** button and the **Add Folder** screen appears. This screen allows you to add a folder. After entering the information, press ***Apply*** to create new folder.

Add Folder	
Item	**Description**
RAID ID	RAID volume where the new folder will reside.
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable or disable users from browsing the folder contents. If **Yes** is selected, then the share folder will be browseable.
Public	Admit or deny public access to this folder. If **Yes** is selected, then users do not need to have access permission to write to this folder. When accessing a public folder via FTP, the behavior is similar to anonymous FTP. Anonymous users can upload/download a file to the folder, but they cannot delete a file from the folder.
Share Folder Limit	Enter the maximum size of the folder in Gigabytes (GB). The folder cannot grow beyond this limit. You can enter a `0` to turn off the share folder limit. This option did not apply while XFS file system selected.
Apply	Press ***Apply*** to create the folder.

NOTE

Folder names are limited to 60 characters. Systems running Windows 98 or earlier may not support file names longer than 15 characters.

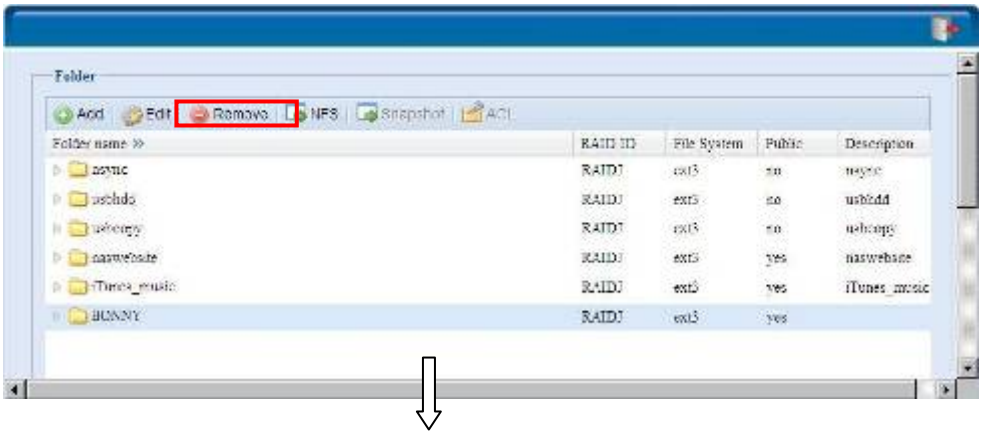
Modify Folders

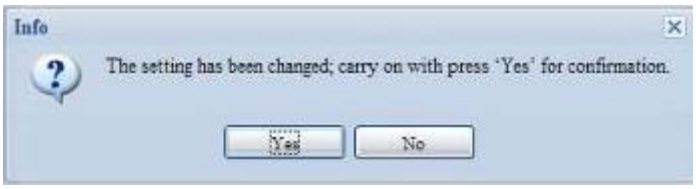
On the **Folder** screen, press the ***Edit*** button and the **Modify Folder** screen appears. This screen allows you to change folder information. After entering the information, press **Apply** to save your changes.

Modify Folder	
Item	**Description**
RAID ID	RAID volume where the folder will reside.
Folder Name	Enter the name of the folder.
Description	Provide a description the folder.
Browseable	Enable or disable users from browsing the folder contents. This setting will only apply while access via SMB/CIFS and web disk.
Public	Admit or deny public access to this folder.
Share Limit	Enter the maximum size of the folder. The folder will not grow beyond this limit. You can enter a 0 to turn off the share folder limit.

Remove Folders

To remove a folder, press the ***Remove*** button from the specified folder row. The system will confirm folder deletion. Press ***Yes*** to delete the folder permanently or ***No*** to go back to the folder list.



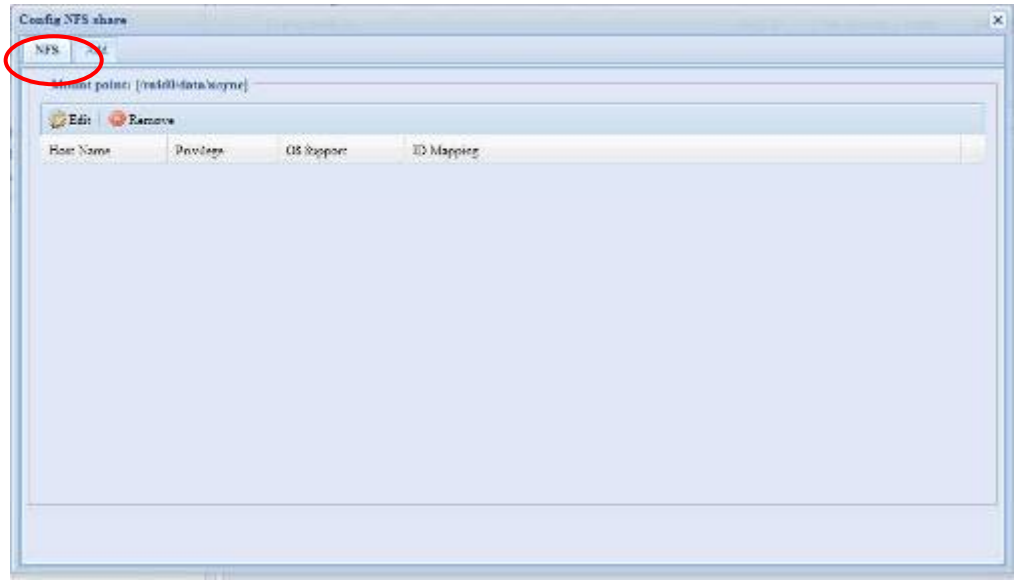


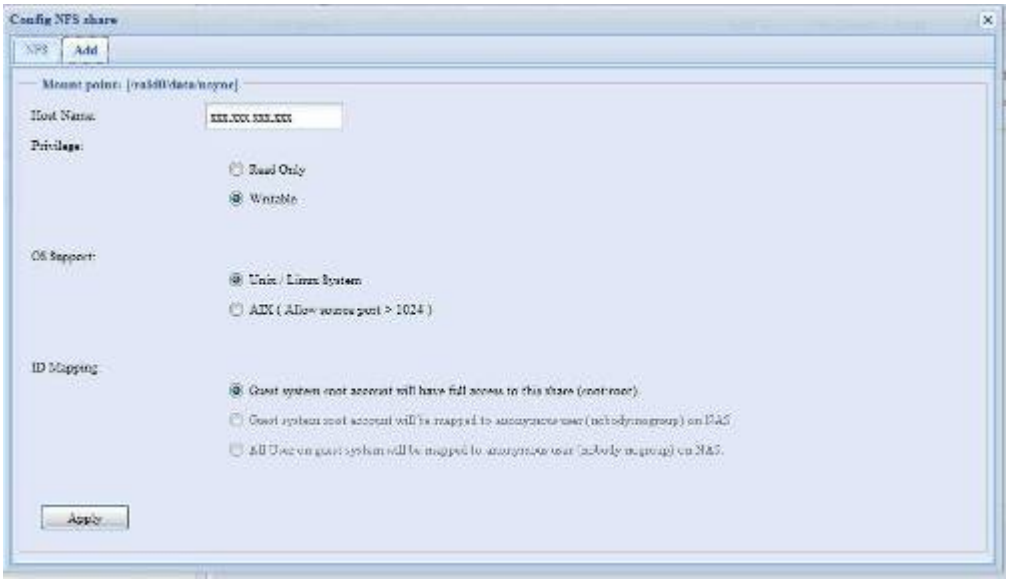
WARNING

All the data stored in the folder will be deleted once the folder is deleted. The data will not be recoverable.

NFS Share

To allow NFS access to the share folder, enable the **NFS Service**, and then set up hosts with access rights by clicking ***Add***.

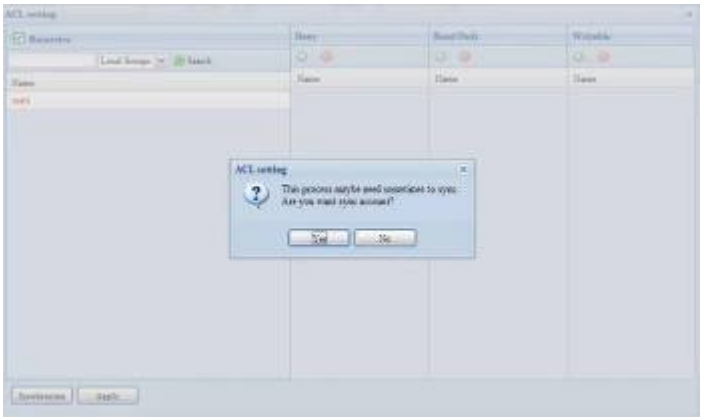


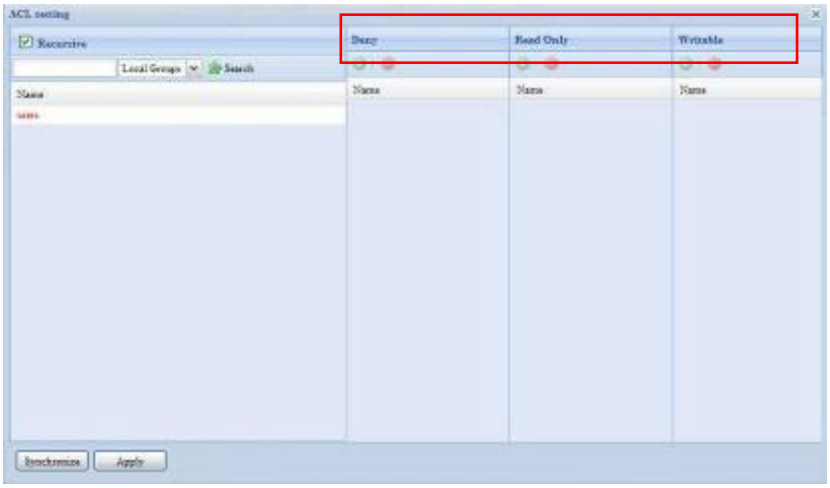


NFS Share	
Item	**Description**
Hostname	Enter the name or IP address of the host
Privilege	Host has either read only or writeable access to the folder.
Guest System Support	There are two selections available: • Unix / Linux System • AIX (Allow source port > 1024) Choose the one which best fits your needs.
IO Mapping	There are three selections available: • Guest system root account will have full access to this share (root:root). • Guest system root account will be mapped to anonymous user (nobody:nogroup) on NAS. • All user on guest system will be mapped to anonymous user (nobody:nogroup) on NAS. Choose the one which best fits your needs.
Apply	Click to save your changes.

Folder and Sub-Folder Access Control List (ACL)

On the Folder screen, press the ***ACL*** button, and the **ACL setting** screen appears. This screen allows you to configure access to the specific folder and sub-folders for users and groups. Select a user or a group from the left hand column and then choose ***Deny***, ***Read Only***, or ***Writable*** to configure their access level. Press the ***Apply*** button to confirm your settings.





ACL setting	
Item	**Description**
Deny	Denies access to users or groups who are displayed in this column.
Read Only	Provides Read Only access to users or groups who are displayed in this column.
Writable	Provides Write access to users or groups who are displayed in this column.
Recursive	Enable to inherit the access right for all its sub-folders.

To configure folder access, follow the steps below:

1. On the **ACL** screen, all network groups and users are listed in the left hand column. Select a group or user from this list.

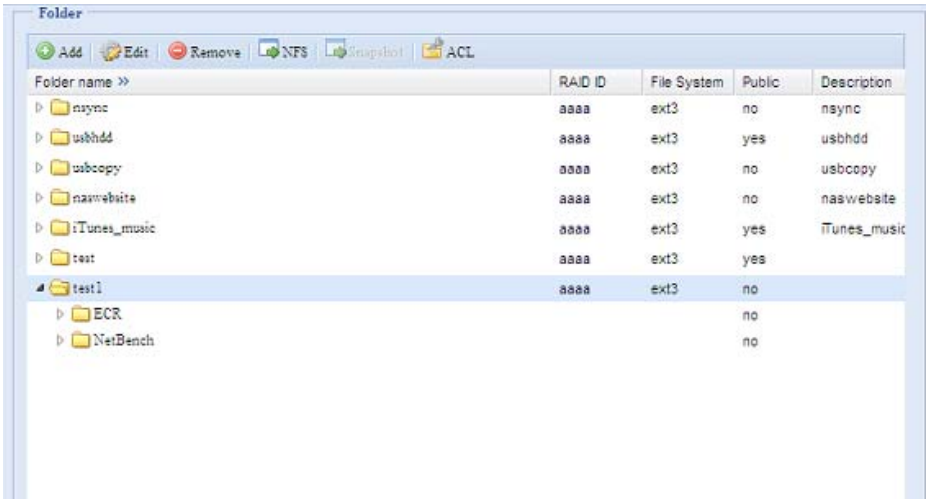
2. With the group or user selected, press one of the buttons from the three access level columns at the top. The group or user then appears in that column and has that level of access to the folder.

3. Continue selecting groups and users and assigning them access levels using the column buttons.
4. To remove a group or user from an access level column, press the ***Remove*** button in that column.

5. When you are finished, press ***Apply*** to confirm your ACL settings.

NOTE If one user has belonged to more than one group but different privilege than the priority Deny > Read Only > Writable

To setup sub-folders ACL, click on the ▷ symbol to extract sub folders list as screen shot shows below. You may carry on with same steps as share level ACL setting.



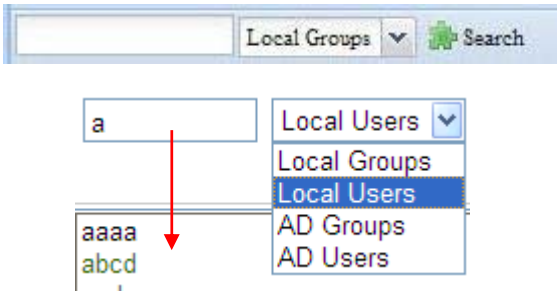
NOTE The ACL can be set for share and sub-folders level, not for files.

The ACL screen also allows you to search for a particular user. To do this, follow the steps below:

1. In the blank, enter the name of the user you would like to find.

2. From the drop down select the group you would like to search for the user in.

3. Click ***Search***.



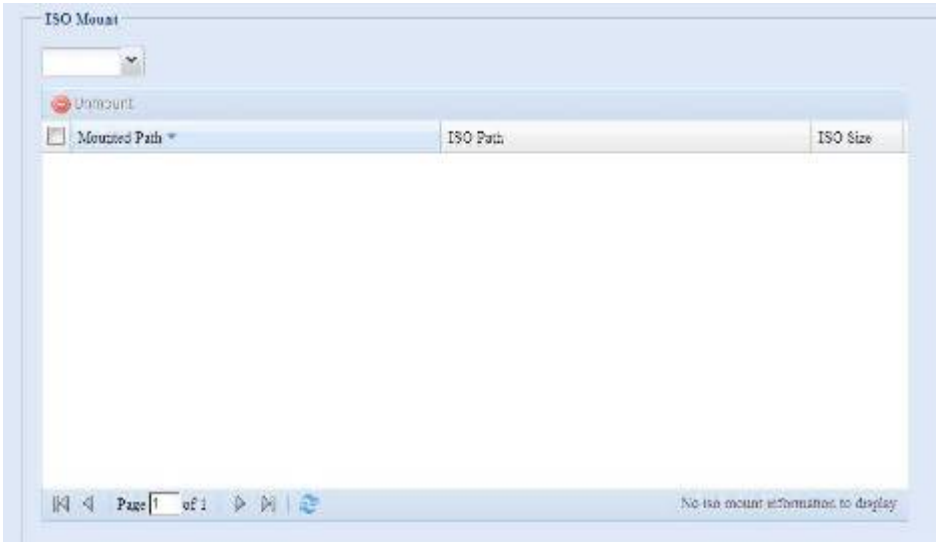
NOTE The system will list up to 1,000 users from the chosen category. To narrow your search, enter a search term in the blank provided.

ISO Mount

The ISO Mount feature is very useful tool included with Thecus products. With it, users can mount an ISO file and have the export name display all details from mounted ISO file.

From the main menu, the ISO Mount feature is located under **Storage**. Please refer the figure below for reference.

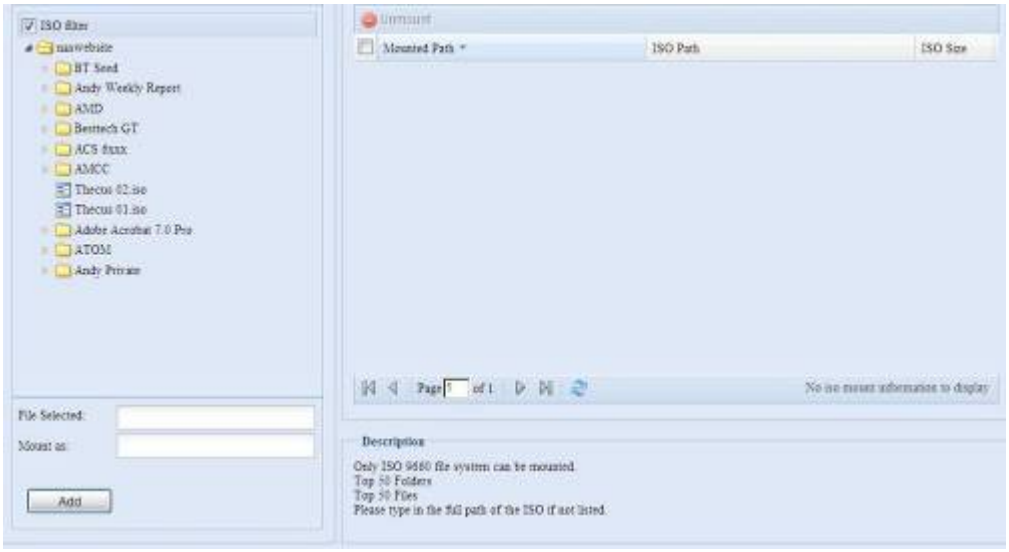
Select the **ISO Mount** function and you will see the following window:

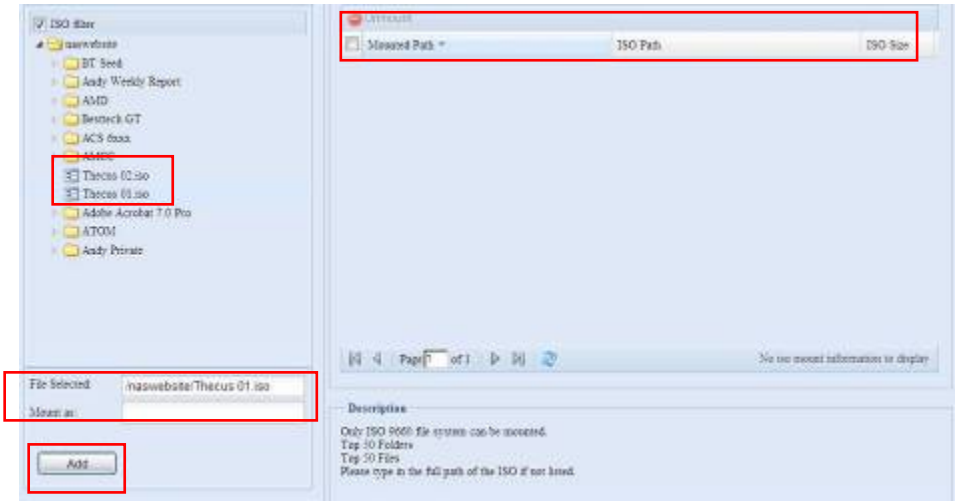


A. Add an ISO file

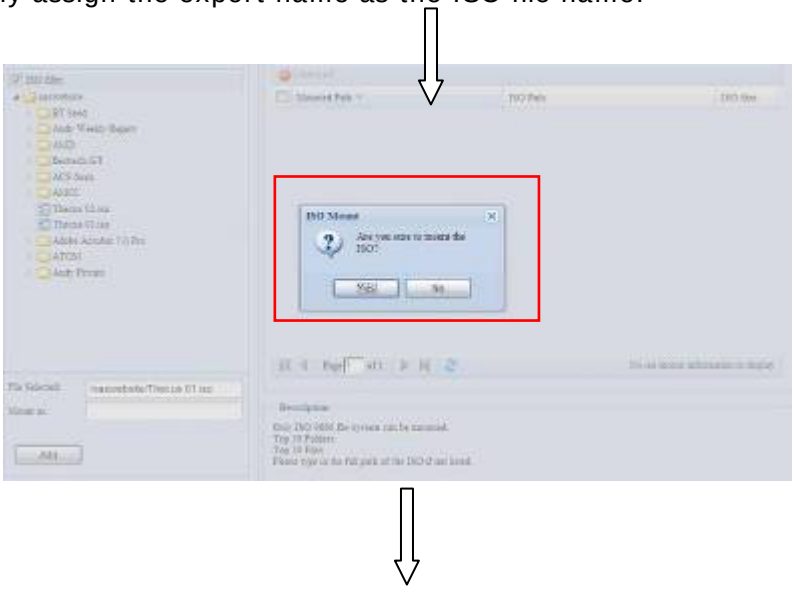
From the figure above, select ISO file from drop down share list.

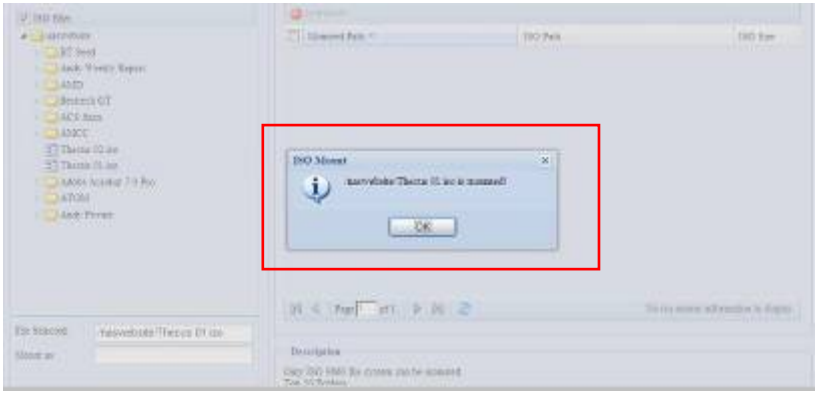
After making a selection, the system will bring up Mount table to enable further settings.



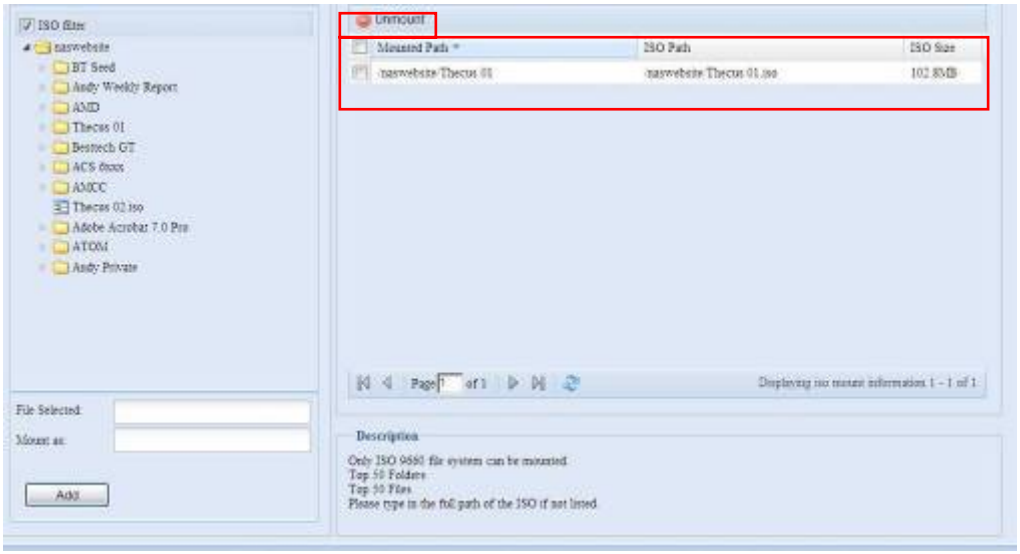


To mount a new ISO file, select one from the listed ISO files and input the desired mounting name into the “Mount as:” field. Click **Add** to complete mounting the ISO file. If you do not enter a “Mount as” ISO file export name, the system will automatically assign the export name as the ISO file name.





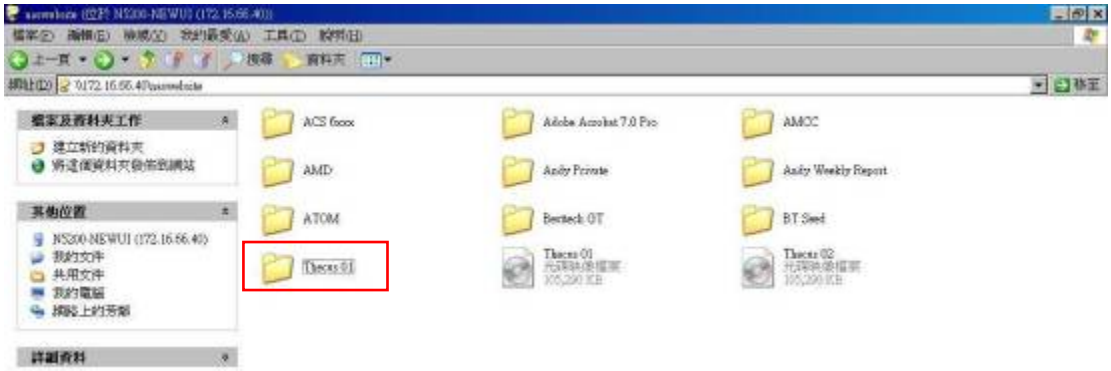
After you have completed adding the ISO image, then the page will display all mounted ISO files:



You can click **Unmount** to remove the mounted ISO file.

B. *Using ISOs*

The mounted ISO file will be located in a share folder with the assigned ISO image name. Please refer the screen shot below.



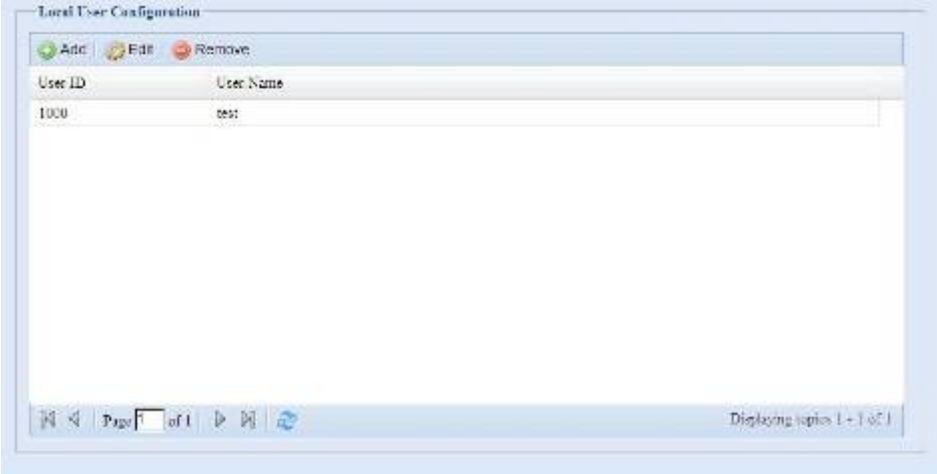
ISO file “image” has been mounted in the “Image” folder. The ISO file “Thecus 01,” without an assigned mounting name, has caused the system to automatically create a “Thecus 01” folder.

User and Group Authentication

The N0204 miniNAS has built-in user database that allows administrators to manage user access using different group policies. From the **User and Group Authentication** menu, you can create, modify, and delete users, and assign them to groups that you designate.

Local User Configuration

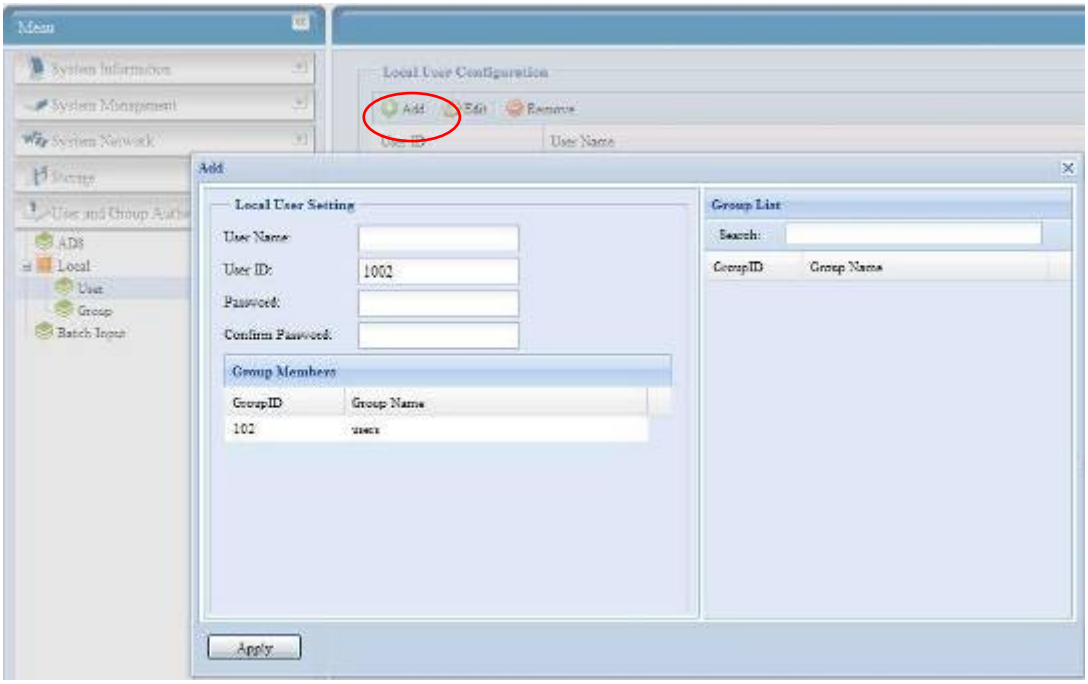
From the **Accounts** menu, choose the **User** item, and the **Local User Configuration** screen appears. This screen allows you to **Add**, **Edit**, and **Remove** local users.



Local User Configuration	
Item	**Description**
Add	Press the ***Add*** button to add a user to the list of local users.
Edit	Press the ***Edit*** button to modify a local user.
Remove	Press the ***Remove*** button to delete a selected user from the system.

Add Users

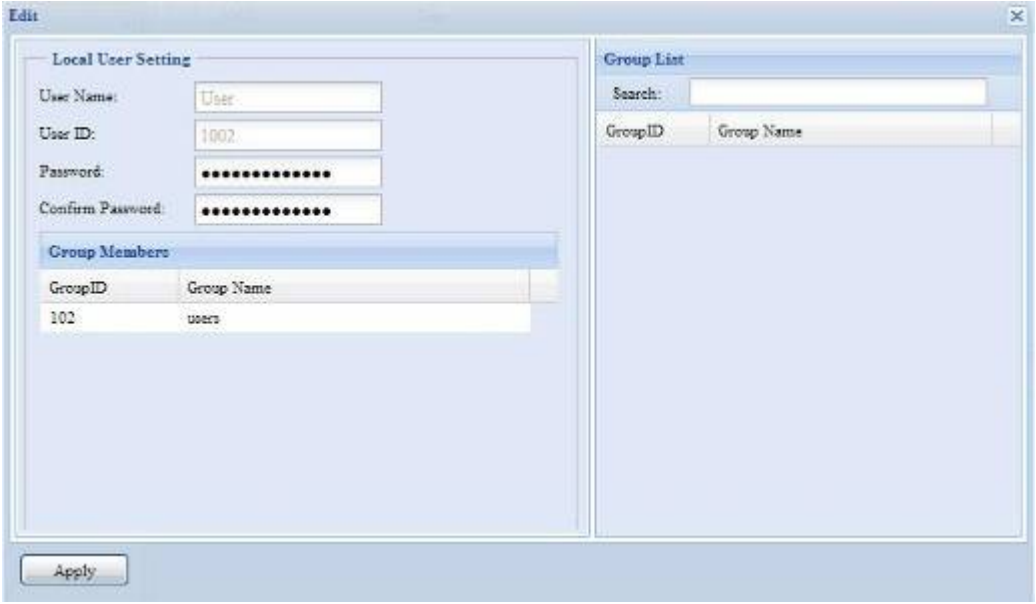
1. Click on the ***Add*** button on **Local User Configuration** screen, and **Local User Setting** screen appears.
2. On the **Local User Setting** screen, enter a name in the **User Name** box.
3. Enter a **User ID** number. If left blank, the system will automatically assign one.
4. Enter a password in the **Password** box and re-enter the password in the **Confirm** box.
5. Select which group the user will belong to. **Group Members** is a list of groups this user belongs to. **Group List** is a list of groups this user does not belong to. Use the **<<** or **>>** buttons to have this user join or leave a group.
6. Press the ***Apply*** button and the user is created.



NOTE All users are automatically assigned to the 'users' group.

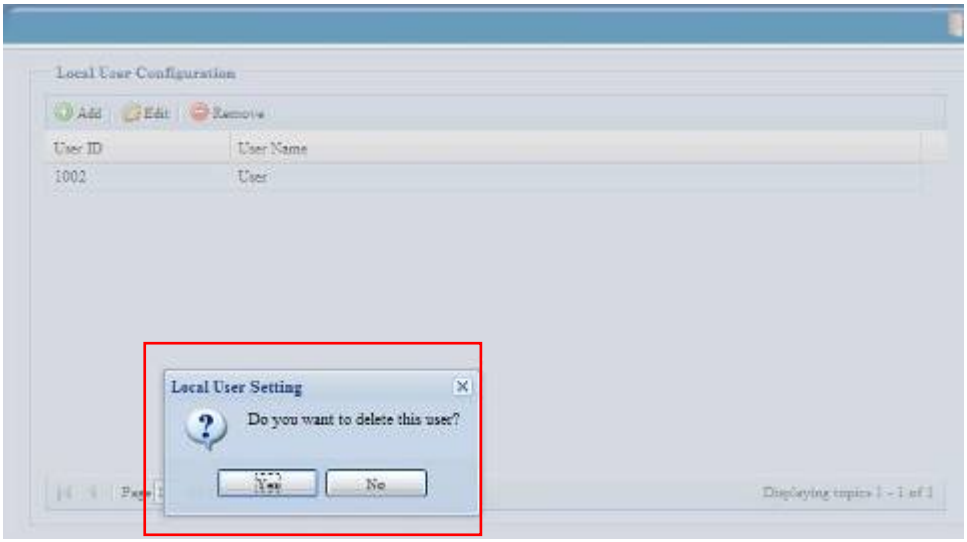
Edit Users

1. Select an existing user from the **Local User Configuration** screen.
2. Click on the ***Edit*** button, and **Local User Setting** screen appears.
3. From here, you can enter a new password and re-enter to confirm, or use the **<<** or **>>** buttons to have this user join or leave a group. Click the ***Apply*** button to save your changes.



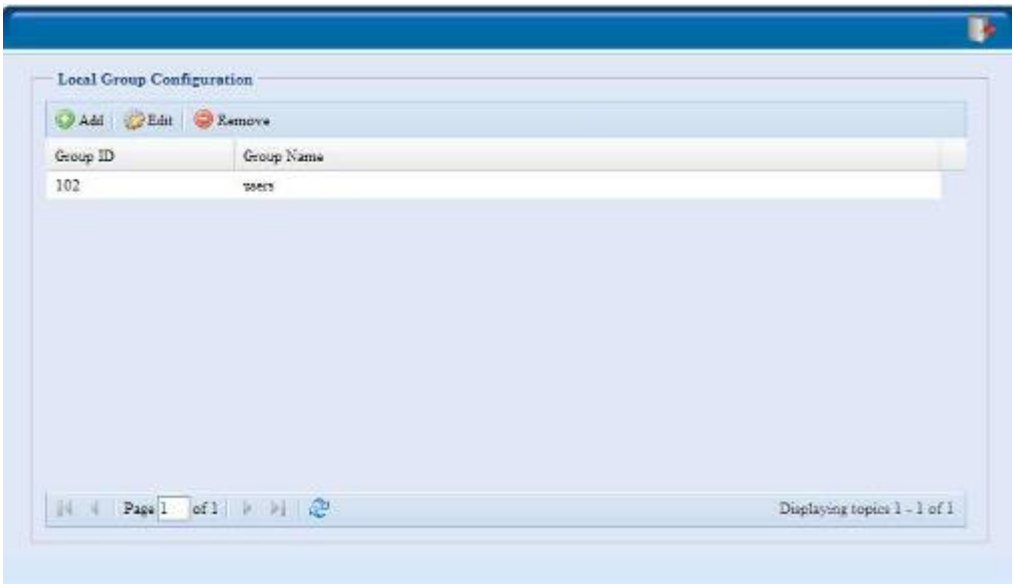
Remove Users

1. Select an existing user from the **Local User Configuration** screen.
2. Click on ***Remove*** button and the user is deleted from the system.



Local Group Configuration

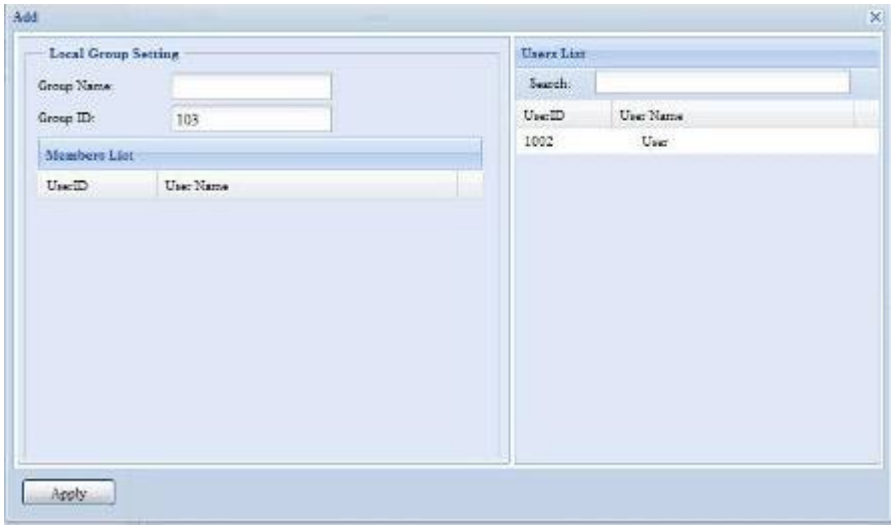
From the **Accounts** menu, choose the ***Group*** item, and the **Local Group Configuration** screen appears. This screen allows you to **Add**, **Edit**, and **Remove** local groups.



Local Group Configuration	
Item	**Description**
Add	Press the ***Add*** button to add a user to the list of local groups.
Edit	Press the ***Edit*** button to modify a selected group from the system.
Remove	Press the **Remove** button to delete a selected group from the system.

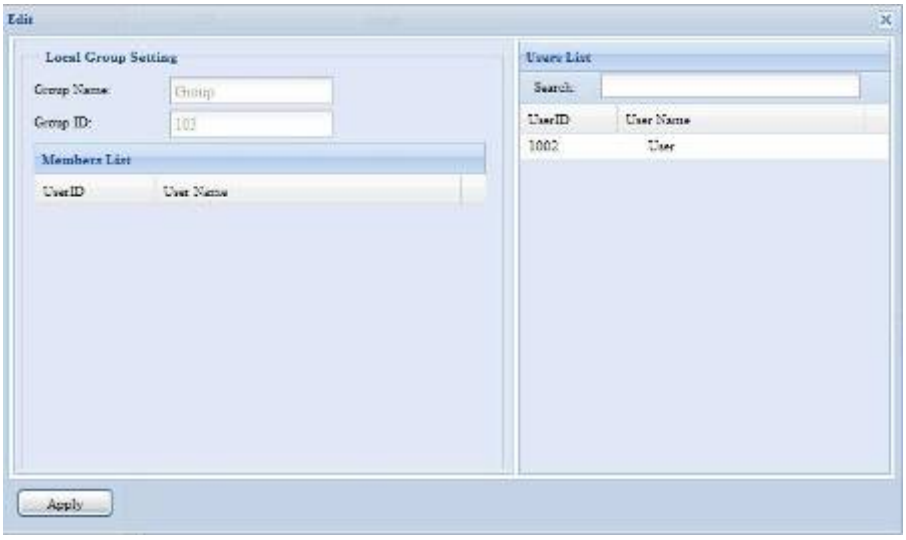
Add Groups

1. On the **Local Group Configuration** screen, click on the ***Add*** button.
2. The **Local Group Setting** screen appears.
3. Enter a **Group Name**.
4. Enter a **Group ID** number. If left blank, the system will automatically assign one.
5. Select users to be in this group from the **Users List** by adding them to the **Members List** using the **<<** button.
6. Click the ***Apply*** button to save your changes.



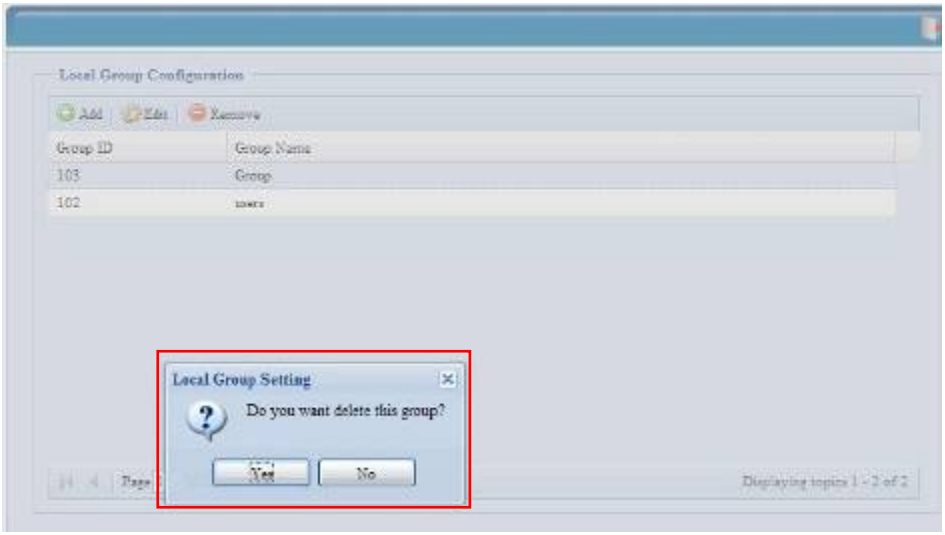
Edit Groups

1. On the **Local Group Configuration** screen, select a group name from the list.
2. Press the ***Edit*** button to modify the members in a group.
3. To add a user into a group, select the user from the **Users List**, and press the **<<** button to move the user into the **Members List**.
4. To remove a user from a group, select the user from **Members List**, and press the **>>** button.
5. Click the ***Apply*** button to save your changes.



Remove Groups

1. On the **Local Group Configuration** screen, select a group name from the list.
2. Press ***Remove*** to delete the group from the system.



Batch Create Users and Groups

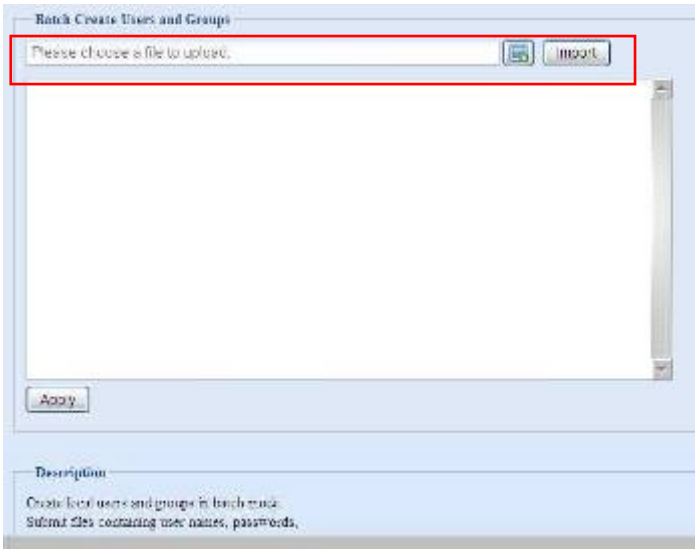
The N0204 can also add users and groups in batch mode. This enables you to conveniently add numerous users and groups automatically by importing a simple comma-separated plain text (*.txt) file.

From the **Accounts** menu, click ***Batch Mgmt*** and the **Batch Create Users and Groups dialogue** will appear. To import your list of users and groups, follow these steps:

1. Click ***Browse…*** to locate your comma-separated text file.
   The information in the text file should follow this format:

   ```
   [USERNAME], [PASSWORD], [GROUP]
   ```

2. Click ***Open***.
3. Click ***Import*** to begin the user list import.

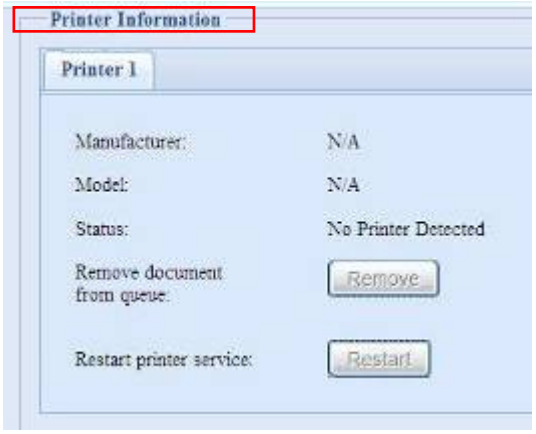


Application Server

The N0204 supports a Printer Server and iTunes Server. The integrated Printer Server allows you to share a single USB printer will all users on the network. By activating the iTunes Server on the N0204 miniNAS, you will be able to directly play music files on this device with your iTunes client software. The following section shows you how.

Printer Information

From the **Application Server** menu, choose the ***Printer*** item, and the **Printer Information** screen appears. This screen provides the following information about the USB printer connected to the USB port.



Printer Information	
Item	**Description**
Manufacturer	Displays the name of the USB printer manufacturer.
Model	Displays the model of the USB printer.
Status	Displays the status of the USB printer.
Remove document from Queue	Click to remove all documents from printer queue
Restart Printer service	Click to restart printer service

If a corrupt print job is sent to a printer, printing may suddenly fail. If your print jobs seem to be locked up, pressing the ***Remove All Documents*** button to clear the print queue may resolve the issue.

You can configure the N0204 miniNAS to act as a printer server. That way, all PCs connected to the network can utilize the same printer.

Windows XP SP2

To set up the Printer Server in Windows XP SP2, follow the steps below:

1. Connect the USB printer to one of the USB ports (preferably the rear USB ports; front USB ports can be used for external HDD enclosures).

2. Go to ***Start*** > ***Printers and Faxes***.

3. Click on **File** > **Add Printer**.

4. The **Add Printer Wizard** appears on your screen. Click ***Next***.

5. Select the "***A network printer, or a printer attached to another computer***" option.

6. Select "***Connect to a printer on the Internet or on a home or office network***", and enter "**`http://N0204_IP_ADDRESS:631/printers/usb-printer`**" into the URL field.

7. Your Windows system will ask you to install drivers for your printer. Select correct driver for your printer.

8. Your Windows system will ask you if you want to set this printer as "Default Printer". Select ***Yes*** and all your print jobs will be submitted to this printer by default. Click ***Next***.

9. Click ***Finish***.

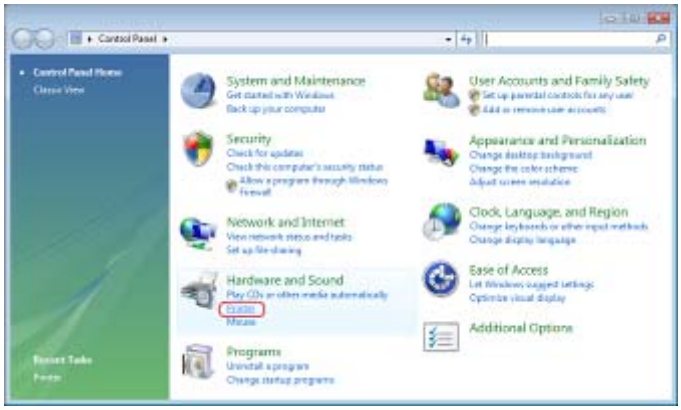
NOTE

- Not all USB printers are supported. Please check Thecus website for a list of supported printers.
- Note that if a multi-function (all-in-one) printer is attached to the N0204, usually only the printing and fax functions will work. Other features, such as scanning, will probably not function.

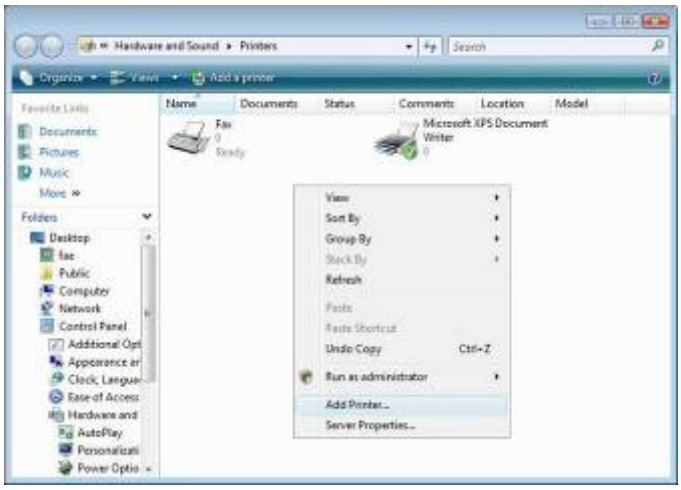
Windows Vista

To set up the Printer Server in Windows Vista, follow the steps below:

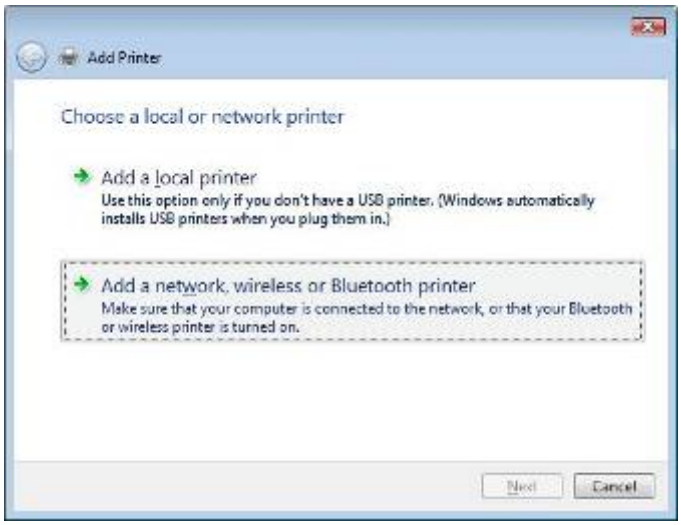
1. Open ***Printer Folder*** from the **Control Panel**.



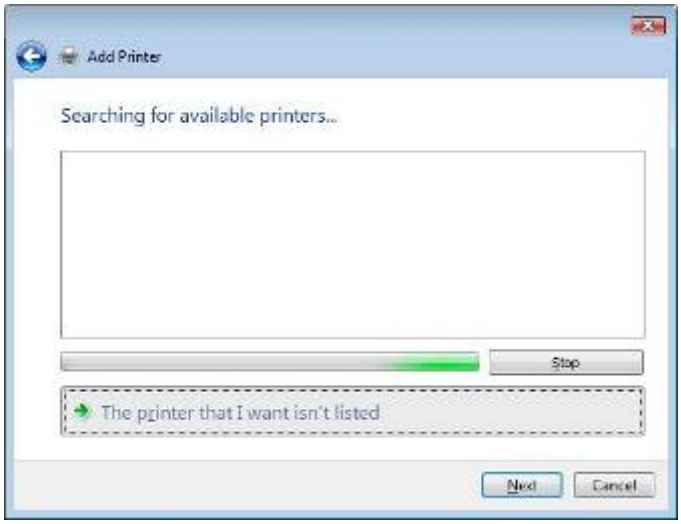
2. Click the right mouse button in anywhere on the **Printers** folder and then select ***Add Printer***.



3. Select ***Add a network, wireless or Bluetooth printer***.


Add Printer
Choose a local or network printer
Add a local printer
Use this option only if you don't have a USB printer. (Windows automatically installs USB printers when you plug them in.)
Add a network, wireless or Bluetooth printer
Make sure that your computer is connected to the network, or that your Bluetooth or wireless printer is turned on.
Next
Cancel

4. Select ***The printer that I want isn't listed***.

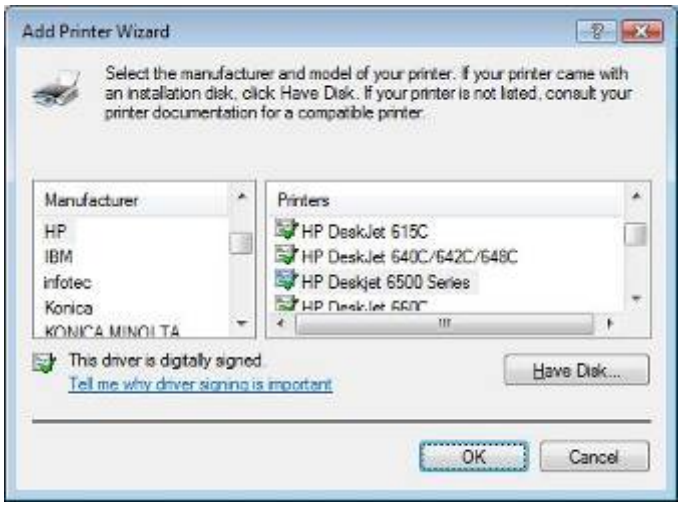


You can press ***The printer that I want isn't listed*** to go into next page without waiting for **Searching for available printers** to finish.

5. Click ***Select a shared printer by name***.

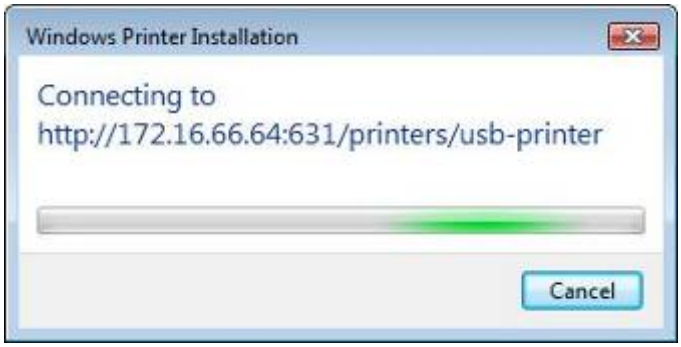
Type `http://<Thecus_NAS>:631/printers/usb-printer` in the box, where <Thecus_NAS_IP> is the IP address of the N0204. Click ***Next***.

6. Select or install a printer and then press ***OK***.


Add Printer Wizard
Select the manufacturer and model of your printer. If your printer came with an installation disk, click Have Disk. If your printer is not listed, consult your printer documentation for a compatible printer.
Manufacturer
HP
IBM
infotec
Konica
Printers
HP DeskJet 615C
HP DeskJet 640C/642C/648C
HP Deskjet 6500 Series
This driver is digitally signed.
Tell me why driver signing is important
Have Disk...
OK
Cancel

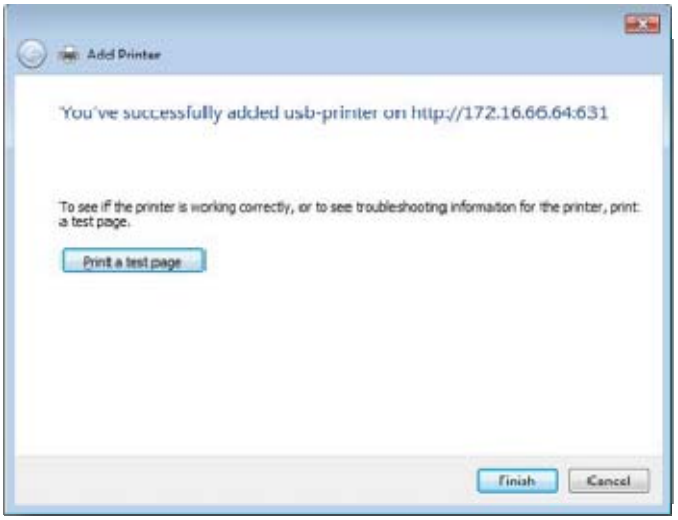
If your printer model is not listed, please contact your printer manufacturer for help.

7. Windows will attempt to connect to the printer.



8. You can choose to set this printer as the default printer by checking the ***Set as the default printer*** box. Click ***Next*** to continue.

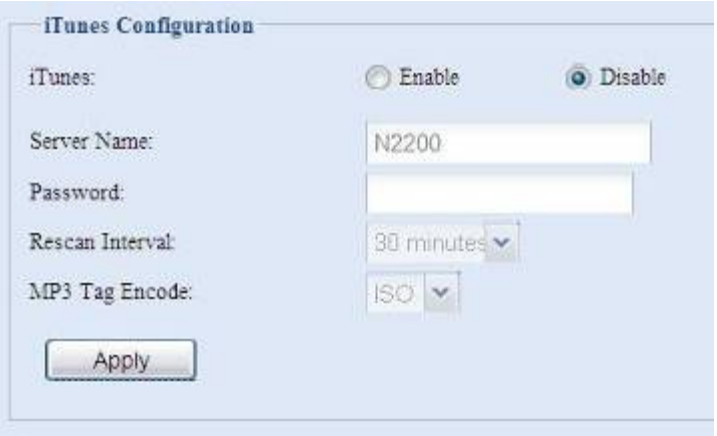
9. Done! Click ***Finish***.


Add Printer
You've successfully added usb-printer on http://172.16.66.64:631
To see if the printer is working correctly, or to see troubleshooting information for the printer, print a test page.
Print a test page
Finish
Cancel

iTunes® Server

With the built-in iTunes server capability, the N0204 miniNAS enables digital music to be shared and played anywhere on the network!

From the **Network** menu, choose the ***iTunes*** item, and the **iTunes Configuration** screen appears. You may enable or disable the iTunes Service from here. Once enabled, enter correct information for each field and press ***Apply*** to save your changes.



See the following table for detailed descriptions of each field:

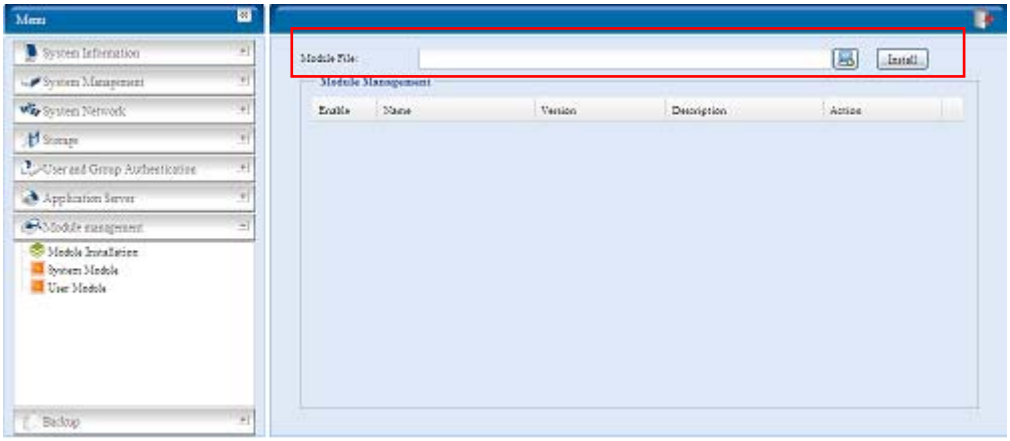
iTunes Configuration	
Item	**Description**
iTunes	Enable or disable the iTunes Service.
Server Name	Name used to identify the N0204 to iTunes clients.
Password	Enter password to control access to your iTunes music.
Rescan Interval	Rescan interval in seconds.
MP3 Tag Encode	Specify tag encoding for MP3 files stored in N0204. All ID3 tags will be sent out in UTF-8 format.

Once the iTunes service is enabled, the N0204 will make all music located in the **Music** folder available for iTunes-equipped computers on the network.

Module Management

Module Installation

From the **Module Management** menu, choose the ***Module Installation*** item and the **Module Management** screen appears. From here, you can install separate software modules to extend the functionality of your N0204.



System Module

The system module is officially provided by Thecus for new features added.

User Module

The user module section is reserved for Thecus fans to build up 3rd party functions in the future.

Backup

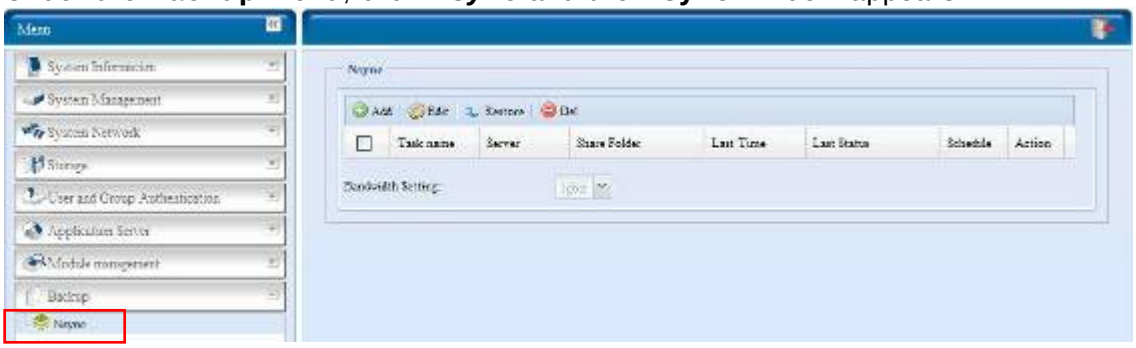
There are a number of ways to back up data with the N0204 miniNAS.

Nsync

You can backup a share folder to another N0204 miniNAS (Nsync Target) or any FTP server for safe keeping as long as you have appropriate access right on that target. When using Nsync between two N0204s, you have the option to transmit files securely between them.

If the files on your N0204 miniNAS are lost for any reason, you can restore those files from the target N0204 miniNAS. To backup files regularly, you can set up a scheduled task to run only once, daily, weekly, or monthly. You can also limit the bandwidth of your Nsync tasks, so other users on the network can share the bandwidth equally.

Under the **Backup** menu, click ***Nsync*** and the **Nsync** window appears.

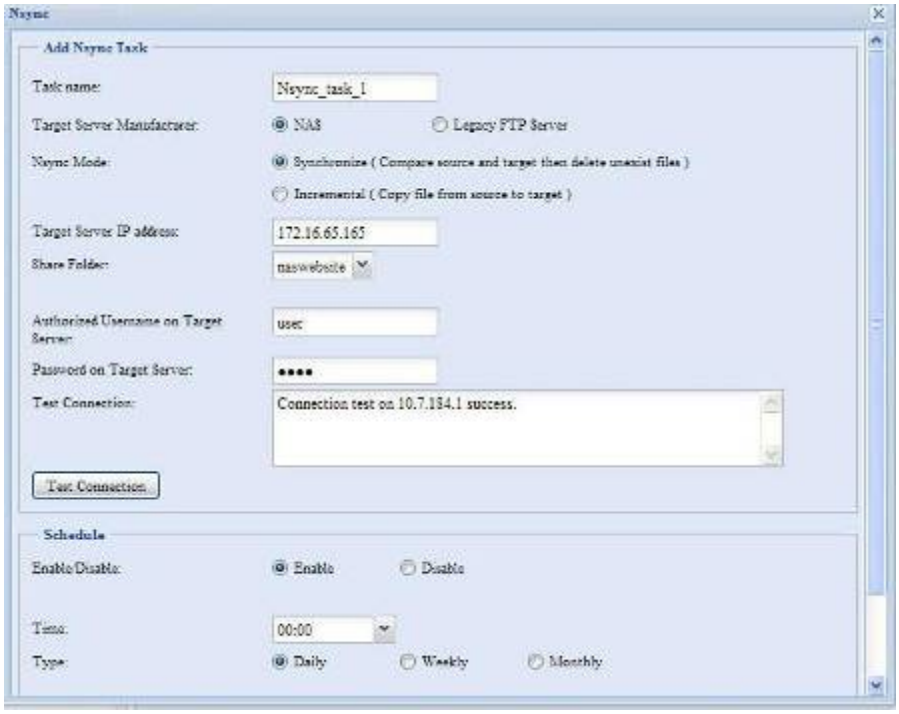


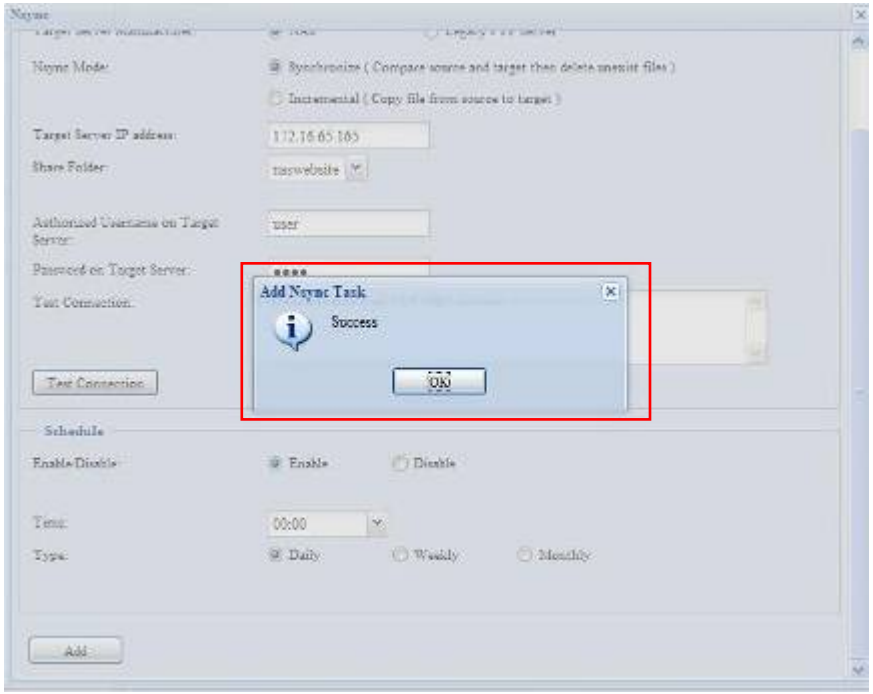
Below is a description of each field:

Nsync	
Item	**Description**
Add	Click to add a Nsync task
Edit	Click to Edit an Nsync task.
Restore	Restore share folder from an Nsync target.
Del	Click to delete an Nsync task. Backup files on Nsync target is also deleted.
Task name	The name of your Nsync task.
Server	The IP address of your target server
Share folder	The share folder you would want to backup.
Last Time	The time when the last Nsync task was executed.
Last Status	The status of your last Nsync task.
Schedule	Schedule backup of your share folders.
Action	Administrator can run or stop an Nsync task by pressing the action button.
Bandwidth Setting	Bandwidth control on Nsync tasks.

Add Nsync Task

From the **Nsync** screen, click ***Add*** to display the **Add Nsync Task** screen.





Add Nsync Task	
Item	**Description**
Task Name	The name of your Nsync task.
Target Server Manufacturer	Select whether the target is a Thecus Product (e.g. N0204) or FTP server.
Nsync Mode	Synchronize mode or Incremental mode .
Target Server IP Address	The IP address of your target server.
Source Folder	The share folder you want to backup.
Authorized Username on Target Server	The account name on the target server.

Password on Target Server	The password for the username on the target server.
Test Connection	Click to check the connection to the Target Server.
Schedule	Enable or Disable schedule backup of your share folders.
Time	The time when the Nsync task will run.
Type	Select whether to run the Nsync task daily, weekly, or monthly. **Daily**: input the time of day to execute Nsync task. **Weekly**: input which day of the week to execute the task. **Monthly**: decide which day of the month to execute the task.
Add	Press **Add** to submit your settings.

NOTE

Before starting an Nsync Task, make sure the target server's Nsync Server (or FTP Server) is enabled.

Setting Up an Nsync Target on an Nsync Device

On the Nsync target server, the administrator of that server has to set up a user account with a folder named "nsync" and grant write access.

1. On the Nsync server, add a user for Nsync source (ex. nsyncsource1). For instructions on how to add a user on the N0204, see **Chapter 4: User and Groups Authentication> Local User Configuration > Add Users**.

2. On the Nsync server, grant that user (ex. nsyncsource1) write access to the **nsync** folder. For instructions on how to set up a folder's ACL, see **Chapter 4: Storage management> Shore Folder> Folder Access Control List (ACL)**.

3. Once this is done, the target server will start accepting Nsync tasks from server using that ID and password.

Setting Up an Nsync Target on Another Device

If you selected "Other Device" when setting up your Nsync task, the N0204 will use the FTP protocol to back up the share folder. On the external storage device, make sure there is a folder named "nsync", and the Auth ID has writable permission in that folder.

Designating N0204 as an Nsync Target

The N0204 can act as an Nsync server, enabling another Nsync-equipped Thecus NAS at a remote location backup their files to this N0204. From the **System Network** menu, choose the ***Nsync Target*** item, and the **Nsync Target Server** screen appears.

Nsync Target Server Setting	
Item	**Description**
Nsync Target Server	Enable or Disable Nsync Target support.

NOTE

To enable Nsync task to go through a firewall, you have to open port TCP/1194 on your firewall in both directions.

Chapter 5: Using the N0204 miniNAS

Overview

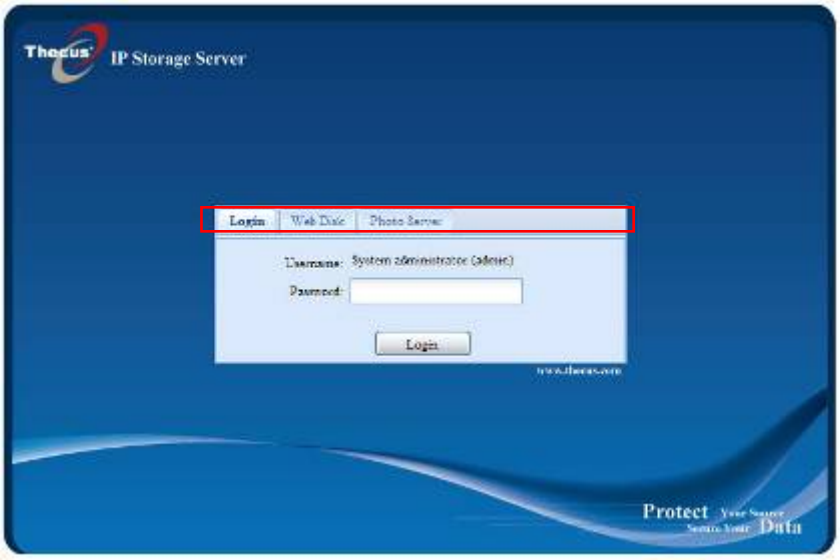
Once the N0204 is setup and operating, users on the network may manage all varieties of digital music, photos, or files by simply using their web browsers. To manage your personal files or access public files on the N0204, just enter its IP address into your browser (default IP address is `http://192.168.1.100`), and you will be taken to the **N0204 Login** page.

NOTE

Before proceeding, make sure that WebDisk Support or Secure WebDisk Support is enabled in the Service Support screen in the system's **Network** menu. See Service Support in Chapter 4: System Network >HTTP/Web Disk.

Login Page

To login to the system, enter your user name and password, and select Web Disk or Photo server then click ***Login*** to log into the system. You will be taken to the **selected** interface.



Using WebDisk

The N0204 provides a WebDisk function that allows you to access the system over the Internet from any browser.

1. In the Login page, type in the User ID and password that were previously set for you in the Accounts menu. See
   Chapter 4:User and Group Authentication > Local User Configuration.

2. The WebDisk page appears showing folders made currently available to you via the **Access Control List (ACL)**.

3. Click on a folder name to enter the folder.

4. The folder's page appears displaying files and folders. Click on a file to download the file.
5. Buttons on the folder page allow you to create a new folder, upload files and delete files in the folder.

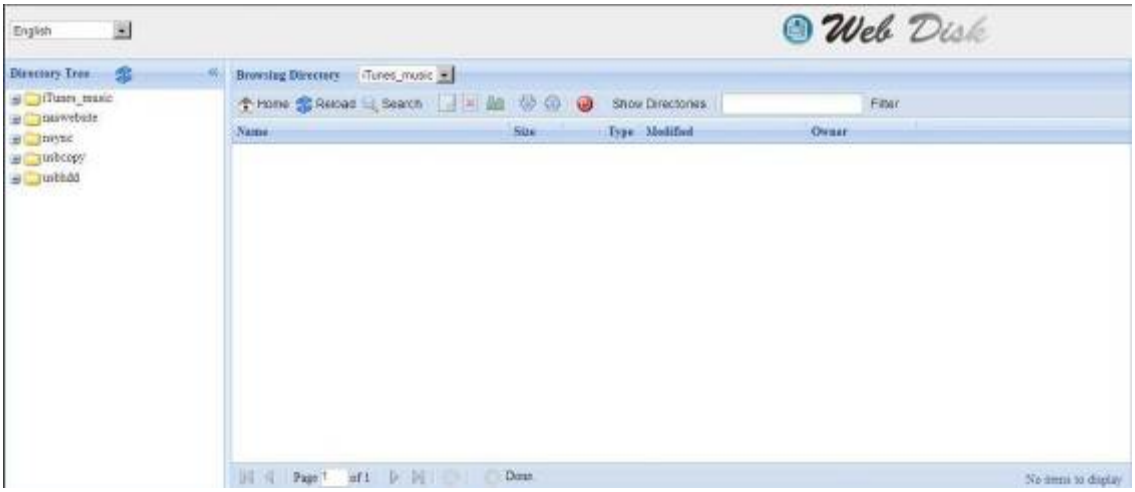
6. To create a new folder within the current folder, press the New folder button. When the screen appears enter a name for the folder. Press OK to create the folder.

7. To upload a file from your computer to the current folder, press the New file (upload) button. When the screen appears, press Browse and locate the file to upload. Press **OK** and the file is uploaded to the current folder.

8. To delete a file or folder, select the file or folder's check box. Press the Delete selected items button. You can also check the check box as the red circle indicates to select all files and folders in this folder.

To access folders with access control, you must first login with a local user account.

For more information on how to setup user rights to the folders, please check ***Chapter 4: Storage Management >Share Folder > Folder Access Control List (ACL).***



Folder Page	
Button	**Description**
Directory Tree	List all directory trees according to the login user's privileges.
Browsing Directory	Browsing selected directory of its folders and files.
Home	Go back to the web disk directory layer.
Reload	Re-load the current list.
Search	Search files in the current web disk directory. (Must input the complete file name.)
(new file/Directory)	Creates a new folder or directory.
(delete)	Deletes selected files or folders.
(Rename)	Rename a directory or file.
(download)	Download a file to current folder of your computer.

(upload)	Upload file from your computer to current web disk folder.
(Admin)	Change password and confirm new password.
(logout)	To logout of the web disk interface.
Show Directories	Show the files and folders in the directory.
Filter	Search files in the directory. (You can only input word strings.)
Name	Displays the names of folders and files.
Size	Shows the size of folders and files.
Type	Displays the type of folders and files.
Modified	Shows the time of most recent modification of folders and files.
Owner	Owner of the file.

There is also the way by using right click button to bring up contact windows as a shortcut.

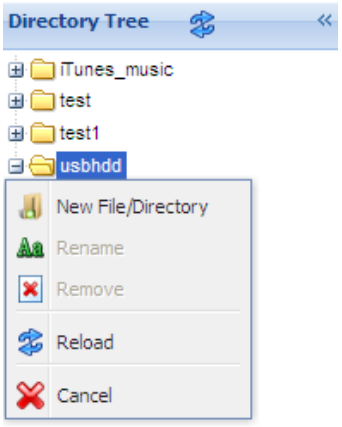
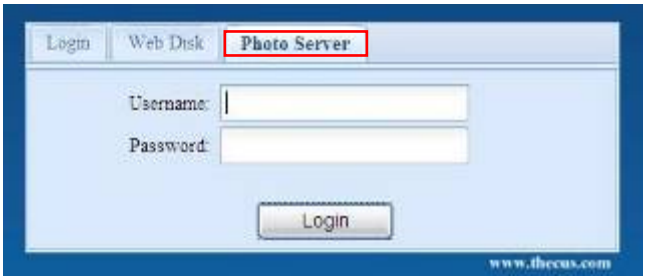


Photo Server

Using the Photo Server, users can view and share photos, and even create their own albums right on the N0204.

You will see your own Photo Gallery and all public Photo Albums on the network.

To manage any picture files, you must first select the item by clicking the box.

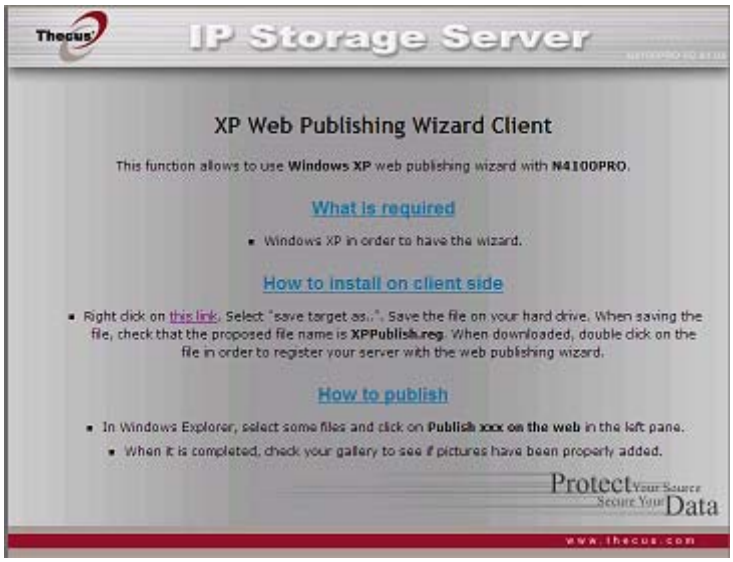


Windows XP Publishing Wizard

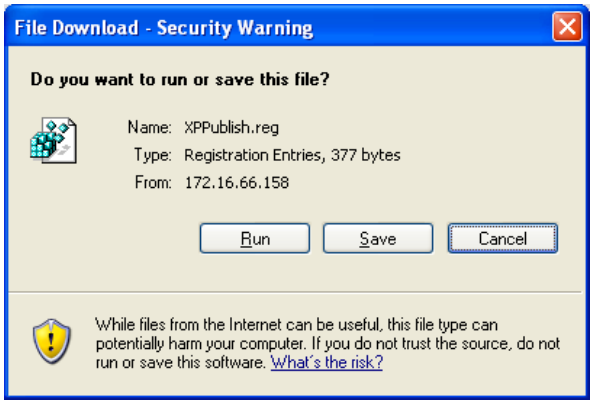
There are many ways for a local user to upload pictures into their photo album. Users of Windows XP can upload their pictures using the Windows XP Publishing Wizard.

1. Click on the ***XP Publishing Wizard*** icon on top right corner.

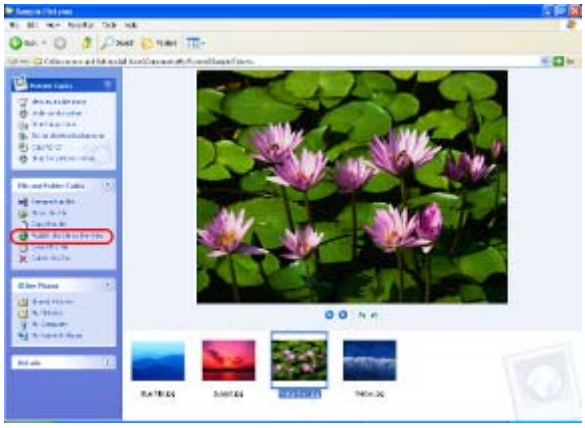
2. The **XP Web Publishing Wizard Client** screen appears. Click on the link to install the Publishing Wizard.


IP Storage Server
XP Web Publishing Wizard Client
This function allows to use Windows XP web publishing wizard with N4100PRO.
What is required
Windows XP in order to have the wizard.
How to install on client side
Right click on this link. Select "save target as..". Save the file on your hard drive. When saving the file, check that the proposed file name is XPPublish.reg. When downloaded, double click on the file in order to register your server with the web publishing wizard.
How to publish
In Windows Explorer, select some files and click on Publish xxx on the web in the left pane.
When it is completed, check your gallery to see if pictures have been properly added.
Protect Your Source Secure Your Data

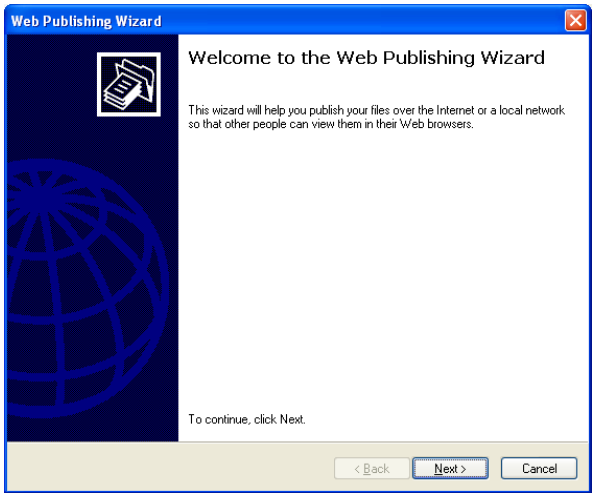
3. Windows XP will ask whether you want to run or save this file. Click **Save** to save the register file.


File Download - Security Warning
Do you want to run or save this file?
Name: XPPublish.reg
Type: Registration Entries, 377 bytes
From: 172.16.66.158
Run
Save
Cancel
While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

4. Once the register file is installed, use the Windows file manager to browse the folder that contains the picture you want to publish. On the left pane, there will be an icon labeled "**Publish this folder to the Web**".



5. Click on this icon and **Web Publishing Wizard** will start.

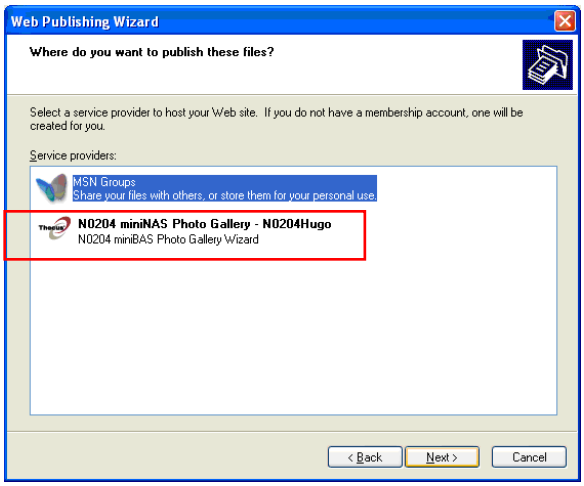

Web Publishing Wizard
Welcome to the Web Publishing Wizard
This wizard will help you publish your files over the Internet or a local network so that other people can view them in their Web browsers.
To continue, click Next.
< Back
Next >
Cancel

6. Select the pictures you want to publish to the Photo Web Server by placing a check mark on the top left hand corner of the picture. Click ***Next***.

Web Publishing Wizard
Change Your File Selection
You can publish the files that have check marks. If you do not want to publish a file, clear its check box.
50 files selected of 50
Select All
Clear All
< Back
Next >
Cancel

7. Your PC will start to connect to the Photo Web Server.

8. Select **N0204 miniNAS Photo Gallery Wizard** to publish your pictures to the N0204 miniNAS.

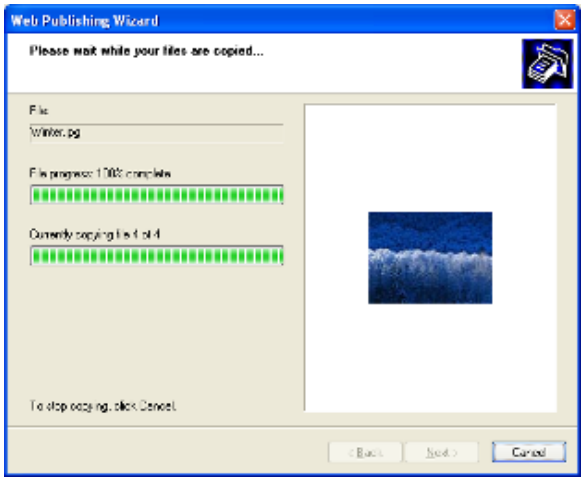

Web Publishing Wizard
Where do you want to publish these files?
Select a service provider to host your Web site. If you do not have a membership account, one will be created for you.
Service providers:
MSN Groups
Share your files with others, or store them for your personal use.
N0204 miniNAS Photo Gallery - N0204Hugo
N0204 miniBAS Photo Gallery Wizard
< Back
Next >
Cancel

9. Login into the N0204 with your local user name and password.

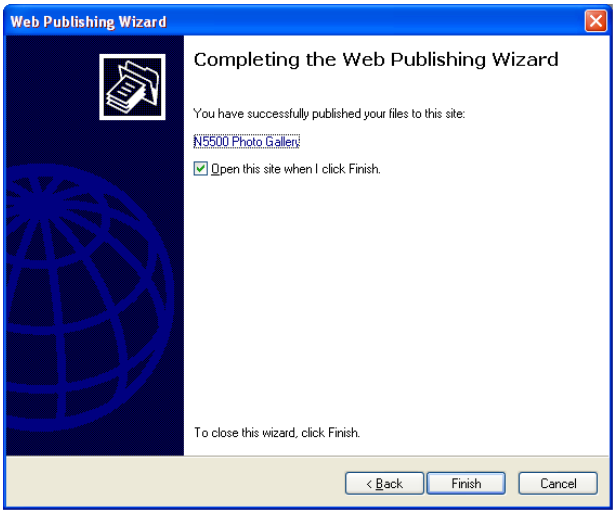
10. Create your album by entering an album name and clicking on the **Create Album** button.

11. Select the album you want to upload your pictures to.
12. Confirm the target album.

13. Windows will show you that the picture upload is in progress.



14. When the upload is finished, the Wizard will ask you whether if you want to go to the website. Click ***Finish*** to go to your Photo Web Server.


Web Publishing Wizard
Completing the Web Publishing Wizard
You have successfully published your files to this site:
N5500 Photo Gallery
Open this site when I click Finish.
To close this wizard, click Finish.
< Back
Finish
Cancel

15. Click on the user's icon to go to that user's album.

16. You will see the user's album list. Click on **Album**.

17. Finished! You will see the pictures just selected in the album.

Managing Albums and Photos

Icon	Function	Description
	Make Cover	Make selected photo your cover picture.
	Back	Return to the previous screen.
	Add	Add a new album or photos.
	Modify	Edit the name and description of the selected album or photo. Each name is limited to 20 characters and each description is limited to 255 characters.
	Delete	Delete the selected albums or photos.

NOTE

- Only logged in users will see these icons.
- To prevent system errors, the N0204 sets the following limitations on photo files:
  - Each file upload is limited to a size of 8MB. Files exceeding 8MB will NOT be uploaded and no error message will appear.
  - Only these photo file types will be uploaded: *.jpg, *.gif, *.bmp, *.png, *.pcx, *.psd, *.bmp.
  - If duplicate file names exist during upload process, system will add a number in front of the original file name (abc → 1abc).

Creating Albums

To create a photo album, follow the steps below:

1. Click the ***Add*** button to create a new album.

2. Enter a name for the album, and enter a description if you wish. Then, click on the ***Create Album*** button.

Password Protecting Albums

If you would like to put a password on a particular album, follow these steps:

1. Select the album to be protected, click on the ***Edit*** button, and the **Album Edit** screen will appear.

2. The owner of the album can enter an album password to protect the album, so that only people with the correct password can view the album.

Uploading Pictures to Albums

Uploading pictures to albums using the Web User Interface is easy:

1. When the album is created, click the album icon to enter the album. Initially the album is empty.

2. Click the ***Add*** button to upload pictures into the album. The **Upload Photos** screen will appear. Users can select and upload up to 8 pictures at a time.

3. Once the picture is uploaded, you can view it in the album. The owner of the album can delete or modify the pictures with the ***Delete*** or ***Modify*** buttons on the top right hand corner

EXIF Information

While viewing pictures, you can also have the N0204 display the EXIF information for each photo.

Simply click the ***EXIF*** button to display EXIF information. To hide this information, click the ***EXIF*** button again.

Slide Shows

Slide shows are a great way to enjoy pictures stored on your N0204.

You can click on the ***Start Slide Show*** icon on the top right hand corner to start the slide show.

To stop the slide show, click on the ***Stop Slide Show*** icon on the top right hand corner.

Mapping a Client PC to the N0204 miniNAS

You can map share folders on the N0204 so that you can access them as if they were drives on your computer. You can connect to the shared network folders on the N0204 as follows:

Windows

1. Go to the **My Computer** folder in Windows.
2. In the menu bar, select ***Tools*** and then ***Map Network Drive…***
3. The **Map Network Drive** window appears.
4. Assign a drive letter for the share folder.
5. Click the ***Browse*** button to find the folder over your network. Alternatively, you may enter the folder name you wish to connect to or enter its IP address. (i.e. `\\192.168.1.100\share`)
6. Click ***Finish***. When the **Connect As…** window appears, enter your user name and password.
7. Click ***OK***. The share folder appears as the drive you assigned. You can now access this folder as though it were a drive on your computer.

Apple OS X

On an Apple computer, you can connect to shared computers and servers using a network address.

1. Choose ***Go*** > ***Connect to Server…***

2. Enter the network address for the server in the Server Address text box.
   When connecting using SMB/CIFS protocol, type:
   `smb://192.168.1.100/Folder1`
   When connecting using AFP protocol, type:
   `afp://192.168.1.100/Folder1`
   Click ***Connect***.

3. When MAC OS X is trying to connect N0204, it will ask for a User Name and Password which has access to the folder.

4. When MAC OS X has connected to the N0204 successfully, an icon representing the folder will appear on the MAC OS X desktop. You can access the folder by double clicking on the icon.

Chapter 6: Tips and Tricks

USB Storage Expansion

The N0204 supports external USB hard disks through its four USB ports. Once a USB hard disk has successfully mounted, the entire volume will be linked automatically to the default USB HDD folder. The N0204 supports up to 6 USB external storage devices. All file names on the USB disk volume are case sensitive.

Before attaching an USB disk drive to N0204, you have to partition and format it on a desktop computer or a notebook first. The attached device will be located at `\\192.168.1.100\usbhdd\sdf1` where `192.168.1.100` means the IP address of N0204 and `sdf1` stands for the first partition on disk #6, the USB disk drive. If it is an NTFS partition, NAS users can open or copy files from `\\192.168.1.100\usbhdd\sdf1` but cannot add new files or modify existing files.

NOTE

If you want to write to a USB storage device, the file system must be FAT32.

USB Storage	FAT32 Partition	NTFS Partition
Read	OK	OK
Write	OK	-

Replacing Damaged Hard Drives

If you are using RAID 1, you can easily replace a damaged hard drive in the Thecus N0204 while keeping your data secure with the system's automatic data recovery.

Hard Drive Damage

When a hard drive is damaged and data in the RAID volume, the system LCD will display warning message and begin beeping.

Replacing a Hard Drive

To replace a hard disk drive in the N0204:

1. Open front door of the N0204.
2. For 2.5” HDDs
    a. Remove the 2.5” HDD tray
    b. Remove failure hard disk
    c. Install new HDD on to the hard disk tray
    d. Slide into HDD tray till it snap into place.

RAID Auto-Rebuild

When using RAID 1 on the N0204, you can use the auto-rebuild function when an error is detected.

1. When a hard disk fails the system beeps and/or an email notification is sent to specified recipients.

2. Check the LED to see which disk has failed.

3. Follow the steps mentioned above to replace the failed hard disk.

4. The system automatically recognizes the new hard disk and starts the auto-rebuild sequence to resume its status before the hard disk crash.

NOTE

When expanding RAID or replacing HDD and the system is not responding, please reboot NAS to start auto-rebuild.

Chapter 7: Troubleshooting

Forgot My Network IP Address

If you forget your network IP address and have no physical access to the system, you can use the Smart _Utility to retrieve the IP of your N0204.

1. Start the Smart Utility, and it will automatically detect all Thecus IP storage products on your network.

Resetting NAS IP Address and Admin Password

In case you changed the N0204 IP address and then forgot it, or forgot the administration password, follow the steps below to reset to default settings:

1. Power on the N0204 and immediately press the ***Reset*** button for 5 seconds.

2. This resets the N0204 to its default IP address and password settings.

   Default IP: `192.168.1.100`
   Default admin password: `admin`

Can't Map a Network Drive in Windows XP

You may have problems mapping a network drive under the following conditions:

1. The network folder is currently mapped using a different user name and password. To connect using a different user name and password, first disconnect any existing mappings to this network share.

2. The mapped network drive could not be created because the following error has occurred: **Multiple connections to a server or shared resource by the same user, using more than one user name, are not allowed.** Disconnect all previous connections to the server or shared resource and try again.

To check out existing network connections, type `net use` under the DOS prompt. You may refer the URL below for more network mapping information.

http://esupport.thecus.com/support/index.php?_m=downloads&_a=viewdownload&downloaditemid=57&nav=0

Restoring Factory Defaults

From the **System** menu, choose the ***Factory Default*** item and **the Reset to Factory Default** screen appears. Press ***Apply*** to reset the N0204 to factory default settings.

WARNING

Resetting to factory defaults will not erase the data stored in the hard disks, but WILL revert all the settings to the factory default values.

Problems with Time and Date Settings

The administrator is able to select an NTP Server to keep the N0204's time synchronized. However, if the N0204 can not access the Internet, you may encounter a problem when setting the Time and Time Zone. If this happens:

1. Login to the Web Administration Interface.
2. Navigate to **System Management>*Time***.
3. Under **NTP Server**, select ***No***.
4. Set the **Date**, **Time**, and **Time Zone**.
5. Click ***Apply***.

In addition, if the N0204 is able to access the Internet and you want to keep the NTP Server clock.isc.org by default, please make sure the DNS Server is correctly entered, thereby allowing the NTP Server name to correctly resolve. (See **System *Network*** > ***WAN*** > ***DNS Server***)

Appendix A: Product Specifications

Hardware Specifications

Item	Spec
Processor	Oxford 810DSE
SATA Controller	Oxford 810DSE
System Memory	128MB DDR2 on board
Flash memory	4 MB
LAN Interface	RJ-45x1 10/100/1000 BASE-TX Auto MDI/MDI-X
USB Interface	USB 2.0 host port x1 (Front) USB 1.1 host port x 1 (Rear)
LED indicator	Power(Blue) HDD1 Failed/Activity(Red/Orange) HDD2 Failed/Activity(Red/Orange) LAN (Link/Activity) : Green USB Copy: Blue
Power supply	15W External power adaptor
Disk interface	2.5” SATA x2 via backplane
Thermal control	System temperature status
Buttons	1. Power button 2. USB copy button
Chassis	Plastic and aluminum chassis
Environment	Temperature : 5C to 40 C Humidity : 0 ~ 80 % R.H. (Non-condensing)

Software Specifications

RAID	
RAID modes	RAID 0, 1 and JBOD
Auto-rebuild	Supported
Hot-swap	Supported
Network	
Configuration	Fixed IP Address, Dynamic IP Address,
Transport Protocols	TCP/IP, AppleTalk, UPnP
File Protocols	SMB/CIFS, HTTP/HTTPS, FTP,AFP
Data Access	
Client OS support	Windows NT/2000/XP/2003/Vista Mac OS 9 / X
WebDisk	Web-based file access
FTP	File transmission protocol
Download Manager	HTTP / FTP / BT (DLM2)
Printer Server (IPP)	1. Support USB printers 2. Support IPP various printers 3. Client can manage print job queue on WEB interface
Data Backup	
USB copy (From external USB disk to NAS)	Copy USB Mass storage device contents to specified location to NAS
USB copy (From NAS to	Copy NAS data to external USB disk

external USB disk)	
NAS Remote Replication	Via Thecus proprietary Nsync
Multimedia Support	
iTunes Server	Supported File Types: AAC, MP3 w/ ID3 tag, WAV
Photo Web Server	1. Supported File Types: GIF, JPG (JPEG), BMP, PNG 2. Support EXIF display 3. Support slide show
Media server	Support uPnP AV streaming protocol
Web cam	Support Capture, preview, schedule Support image size : 160 x 120, 320 x 240, 640 x 480
User Authentication	
Local User	Supports built-in user accounts
Local Group	Supports built-in user groups
File System	
Type	Journaling File System
Capacity	1TB or above
Language Support	Unicode Support
Authorization	Read, Write or Deny options on individual users or groups
Power Management	
Disk Spin down	Supported
System On/Off schedule	Supported
Administration	
Multi-Lingual Web-based administration	Web-based server management Interface Supports English, Traditional Chinese, Simplified Chinese, Japanese, Korean, French, German, Italian, Spanish
Utility Program	MS Windows Setup Wizard, Support multilingual Support Windows 2000/XP/2003/Vista, Mac OSX backup utility
Email notification	Send the system messages via Email to the system administrator
Others	
ISO mount	Supported
Recycled Bin	Supported

Appendix B: Customer Support

If your N0204 is not working properly, we encourage you to check out **Chapter 7: Troubleshooting**, located in this manual. You can also try to ensure that you are using the latest firmware version for your N0204 miniNAS. Thecus is committed to providing free firmware upgrades to our customers. Our newest firmware is available on our Download Center:

http://www.thecus.com/download.php

If you are still experiencing problems with your N0204 miniNAS, or require a Return Merchandise Authorization (RMA), feel free to contact technical support via our Technical Support Website:

http://www.thecus.com/support_tech.php

Customers in the US should send all technical support enquiries to the US contact window included in the following web page:

http://www.thecus.com/support_tech.php

For Sales Information you can e-mail us at:

sales@thecus.com

Thank you for choosing Thecus!

Appendix C: RAID Basics

Overview

A Redundant Array of Independent Disks (RAID) is an array of several hard disks that provide data security and high performance. A RAID system accesses several hard disks simultaneously, which improves I/O performance over a single hard disk. Data security is enhanced by a RAID, since data loss due to a hard disk failure is minimized by regenerating redundant data from the other RAID hard disks.

Benefits

RAID improves I/O performance, and increases data security through fault tolerance and redundant data storage.

Improved Performance

RAID provides access to several hard disk drives simultaneously, which greatly increases I/O performance.

Data Security

Hard disk drive failure unfortunately is a common occurrence. A RAID helps prevent against the loss of data due to hard disk failure. A RAID offers additional hard disk drives that can avert data loss from a hard disk drive failure. If a hard drive fails, the RAID volume can regenerate data from the data and parity stored on its other hard disk drives.

RAID Levels

The Thecus N0204 miniNAS supports standard RAID levels 0, 1, and JBOD. You choose a RAID level when you create a system volume. The factors for selecting a RAID level are:

- Your requirements for performance
- Your need for data security
- Number of hard disk drives in the system, capacity of hard disk drives in the system

The following is a description of each RAID level:

RAID 0

RAID 0 is best suited for applications that need high bandwidth but do not require a high level of data security. The RAID 0 level provides the best performance of all the RAID levels, but it does not provide data redundancy.

RAID 0 uses disk striping and breaking up data into blocks to write across all hard drives in the volume. The system can then use multiple hard drives for faster read and write. The stripe size parameter that was set when the RAID was created determines the size of each block. No parity calculations complicate the write operation.

RAID 1

RAID 1 mirrors all data from one hard disk drive to a second one hard disk drive, thus providing complete data redundancy. However, the cost of data storage capacity is doubled.

This is excellent for complete data security.

JBOD

Although a concatenation of disks (also called JBOD, or "Just a Bunch of Disks") is not one of the numbered RAID levels, it is a popular method for combining multiple physical disk drives into a single virtual one. As the name implies, disks are merely concatenated together, end to beginning, so they appear to be a single large disk.

As the data on JBOD is not protected, one drive failure could result total data loss.

Stripe Size

The length of the data segments being written across multiple hard disks. Data is written in stripes across the multiple hard disks of a RAID. Since multiple disks are accessed at the same time, disk striping enhances performance. The stripes can vary in size.

Disk Usage

When 2 disks are of the same size, and used in RAID, N0204 miniNAS disk usage percentage is listed below:

RAID Level	**Percentage Used**
RAID 0	100%
RAID 1	1/n x 100%
JBOD	100%

n： number of installed HDDs

Appendix D: Licensing Information

Overview

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Thecus Technology Corp. has exposed the full source code of the GPL licensed software. For more information on how you can obtain our source code, please visit our web site, http://www.thecus.com.

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